Part 1
Discussion of proposals

Introduction

1 This document sets out the proposals of the Health and Safety Commission for regulations controlling the conveyance, loading and unloading of dangerous substances in harbour areas, and for an approved code of practice to be associated with the regulations. The proposals draw upon the results of a study made of the problem by a Working Party of the Advisory Committee on Dangerous Substances comprising representatives from interested organisations including the Confederation of British Industry, Trades Union Congress, British Ports Association, the General Council of British Shipping, the Chemical Industries Association, the Institute of Petroleum, the Independent Tank Storage Association and the UK Pilots Association. Local Authority Associations and Government Departments were also represented.

Present position

2 The extent to which the conveyance of dangerous substances in harbour areas is controlled by legislation varies considerably from one harbour to another. In some degree, this unevenness of control reflects the different nature of dangerous substances handled in the respective harbours, but more frequently absence of control is a consequence of the complicated and, in some respects, archaic system by which controls are introduced.

3 Detailed harbour controls usually take the form of individual harbour byelaws, the powers for making which are derived from public legislation such as the Explosives Act 1875 and the Petroleum (Consolidation) Act 1928, or from private legislation, such as the Port of London Act 1968. To ensure that harbour byelaws are reasonably uniform and up-to-date, the Department of Transport publish from time to time model codes of byelaws for explosives and petroleum spirit, but some explosives byelaws, for example, were made in the years shortly after the Explosives Act 1875 became law, and no longer meet present day needs.

4 Although the use of model codes of harbour byelaws was designed to ensure that, as far as possible, standard requirements were adopted by harbour authorities, variations in the individual byelaws were, of course, necessary to achieve local control of the use made of individual berths or restrictions on dangerous substances in specified areas, for example.

5 Generally, the accident record on the conveyance and handling of dangerous substances in British ports is good. The record may be considered at three levels: at the level of lowest severity, accidents may occur from spillages caused by the mishandling of packages or poor packaging, from outbreaks of fires which may not develop into the full consequences of a major incident, and from conditions in confined spaces where persons may experience difficulty because of the presence of toxic fumes or insufficient oxygen. Such accidents are reported fairly frequently, and occasionally may result in death or injury. They may disrupt port operations and cause economic loss even though no injuries may be sustained.

6 At the intermediate level of severity, accidents in which several lives may be lost happen from time to time, as in the case of the 'Tacoma' in 1970 when 6 people were killed after a spillage of petroleum-spirit, and the 'Gloriosa' at Penzance in 1980 when 2 people were asphyxiated after entering a confined space.

7 British ports have been singularly free of the most severe type of accident in which large numbers of people have lost their lives. The most notable accidents have occurred abroad, usually involving explosives or substances having explosive characteristics. They include the disaster at Halifax, Nova Scotia, in 1917 when over 2000 people were killed, the Bombay explosion in 1944 (1250 deaths), an explosion at Port Chicago, California, in 1944 (320 deaths) and explosions of ammonium nitrate at Texas City, in 1947 (approximately 600 deaths) and at Brest in 1947 (21 deaths).

8 The tragic consequences of such accidents underline the need for the utmost vigilance to ensure that the probability of a similar accident happening in a British port is kept at the lowest possible level.

9 The development of very large crude carriers more recently has led to a disturbing increase in accidents to marine tankers in port, including that on the 'Betelgeuse' at Bantry Bay, in 1979 in which 50 people were killed, and the 'Energy Concentration' at Rotterdam in 1980.

10 Many severe accidents might have been avoided had simple precautions been taken and a disciplined system of behaviour maintained. Ignorance and over confidence have often played a major role in the development of a disaster.

11 The proposed planning of work activities also plays a part in limiting the number of people at risk, and we have asked the Advisory Committee on Major Hazards to look into the major hazard aspects of the transport of dangerous substances, including shipping in ports.

Recommendations of the International Maritime Organisation

12 Probably all the important ports of the world regulate in some degree the conveyance, loading and unloading of dangerous substances in the harbour area. The need for international harmonisation of such controls has been recognised by the International Maritime Organisation (IMO), which started work on the preparation of new recommendations at about the same time that the Health and Safety Executive began work in earnest in preparing proposals for British ports. The United Kingdom participated in the IMO work which proceeded in parallel with that carried out by a working party of the Advisory Committee on Dangerous Substances. The recommendations which IMO published in 1981 constitute a framework for regulations designed to ensure the safe transport, handling and storage of dangerous substances in port areas, and are broadly consistent with the principles in this Consultative Document. The guidance given in the draft approved code of practice is in rather more detail than the IMO recommendations.

Need for regulations and their objective

13 Examination of the circumstances of the accidents described above demonstrates a need to bring existing byelaw controls into line with present day needs, and to standardise them by means of national regulations. The Explosives Act 1875 and the Petroleum (Consolidation) Act 1928 and the byelaws made under these Acts are relevant statutory provisions under the Health and Safety at Work etc. Act 1974, which the Act envisages should be progressively replaced by a system of regulations and approved codes of practice operating in combination with the general provisions of the Act.

14 The making of individual harbour byelaws is an expensive and time-consuming process, and since most of the petroleum-spirit and explosives byelaws currently in force have been based on a national model code, replacement of such byelaws by regulations having national application is a logical step.

15 The primary objective of the proposed regulations is to control work activities arising during the conveyance, loading and unloading of dangerous substances and their storage in harbour areas so as to avoid risks to the health and safety of workers and members of the public in the vicinity of such areas of activity. The statutory area of jurisdiction of harbour authorities is usually defined in local Acts of Parliament or harbour revision orders. Areas of water within the scope of the proposed regulations are generally those navigable by sea-going vessels, for which purpose inland waters such as the Manchester Ship Canal would be included. The regulations would apply to land used operationally by the harbour authority for the loading or unloading of dangerous substances, and berths adjacent to navigable waters, but outside the direct jurisdiction of a harbour authority. Inland waters not navigable by sea-going ships are excluded from the scope of the regulations except to the extent that they may form part of the statutory area of jurisdiction of a harbour authority.

Structure of Regulations and Approved Code of Practice

16 Section 16 of the Health and Safety at Work Act makes provision for codes of practice to be published by the Health and Safety Commission with the consent of the Secretary of State in order to give practical guidance on how statutory requirements may be met. A breach of such an approved code of practice may be referred to in criminal proceedings as evidence of a failure to comply with the statutory provision in question, but it is open to the defendant to show that he complied with the statutory requirement by some other means. The use of approved codes of practice is intended to enable statutory requirements to be limited to the essential fundamental principles to be observed, supported by guidance in the approved code of practice which can be couched in layman's language and can be kept up to date more easily than would be the case if similar detail was given direct legal effect. Due to the detailed nature of existing byelaws which these regulations

and code of practice are intended to replace the allocation of material between regulations and the code of practice has not been a simple task. Comments are particularly invited on whether the balance is satisfactory.

Classification of dangerous substances

17 Systems of classifying dangerous substances which are currently in use or likely to come into use shortly differ slightly for the various modes of transport, since the circumstances of each mode of transport are not identical, and substances which present a danger of, say, spontaneous combustion in a voyage of long duration in a ship's hold may be regarded as non-hazardous in the circumstances of conveyance by road. Since the proposed ports regulations apply predominantly to ships, the more comprehensive UN system of classification has been followed. High flashpoint liquids, which may not need to be regulated under some conditions, constitute a significant hazard in harbour areas although not so great as flammable liquids having a flashpoint of less than 60°C conventionally classified as dangerous. It is proposed that flammable liquids with a flashpoint of over 60°C should be subject to a limited number of regulations, even though they are outside the UN classification system.

Hazards arising in confined spaces

18 Fatal accidents continue to occur in confined spaces in ships where toxic vapours or gases may accumulate, or oxygen may be depleted below the level necessary to sustain life. The regulations and provisions in the approved code of practice which are envisaged call for a system of disciplined behaviour designed to ensure that those concerned are aware of the likely hazards and enter dangerous confined spaces only when proper precautions have been taken.

Ships' signals

19 For many years, it was the practice for model codes of byelaws to recommend that ships carrying explosives or petroleum-spirit should display at night a red all-round light at the masthead, both when the ship was under way and when moored or anchored. Fears that the display of such a red light at the masthead might be confused with the portside navigational light led to a modification of the model code to require the red masthead light to be displayed only when a ship was moored or anchored.

20 Examples can be found in existing harbour byelaws where the red masthead light is required to be displayed when the ship is under way, and also to the contrary, where such use of the red light is prohibited.

21 Although there has been considerable controversy on the question, no evidence has been adduced to show that the display of the red masthead light when a ship is under way has actually caused confusion during navigation. The matter has been discussed by the IMO Safety of Navigation Committee and by the IMO Ports Working Group, who confirmed that any signal to be shown at night should be an all-round red light. An absolute prohibition of the red masthead light when a ship is under way has not been recommended by IMO, and a requirement for such a light has been left to the discretion of the regulatory authority of each country.

22 Those who oppose the use of the masthead red light when a ship is under way argue that the light may cause confusion and that there is doubt about the meaning of the light since it confers no privilege in navigation. Those in favour, including harbour authority representatives, say that in ports where the light is currently required, no confusion has arisen, and that the presence of such a signal would provide helpful information to the masters navigating in confined harbour waters in proximity to ships presenting a possible major hazard. Comments on this issue are invited.

Hazard marking of barges

23 The proposed requirement for hazard warning panels to be displayed by barges carrying dangerous goods makes no provision for an emergency action code ('Hazchem' Code) to appear on the panel giving the emergency services advice on suitable action to take when dealing with a spillage, fire or other incident. The general view was that the Hazchem codes currently available had been devised for the circumstances of road transport, and might be quite inappropriate if applied without modification to water transport. An opposing view was that, given the limitation of existing codes, some fire

brigades might nevertheless find them useful in the context of navigable waters of a harbour, and their presence would give useful information which might be used by fire brigades at their discretion.

Explosives licensing and security

24 Because of the severe danger that explosives may present, particularly if involved in a fire, the proposed regulations provide for the licensing of places in harbour areas where explosives may be loaded or unloaded. Such licences would be issued by the HSE taking local circumstances into account, and quantities of explosives handled at a particular berth would be limited so as not to present an unacceptable risk to people who may be living or working in the vicinity.

25 In addition to provisions specifically designed to ensure safety in the handling of explosives, certain requirements are designed to promote good security by, for example, the maintenance of safeguards against theft.

26 It is proposed that the current Ministry of Defence Conveyance in Harbours of Military Explosives Regulations 1977 (S.I. 1977 No 890) should be revoked, with certain transitional arrangements pending the issue of a harbour explosives licence.

Implications of 'Betelgeuse' Accident

27 Investigation of the causes of the 'Betelgeuse' accident at Bantry Bay on 8 January 1979 has shown a need for special attention to be given to the correct ballasting of oil tankers during the loading or unloading process, and the desirability of inerting spaces containing flammable vapours. Regulation 21 requires the Master to avoid introducing excessive bending moments or shearing forces into a ship's structure by uneven weight distribution. Regulation 18(2) requires the atmosphere of any tank being washed with crude oil to be properly inerted, and the operation is subject to the permission of the harbour master. The regulations and approved code of practice contain numerous other provisions designed to reduce the probability of such an accident occurring in British ports.

Storage

28 The regulations contain some fairly fundamental provisions in Part VIII designed to ensure a reasonable standard of construction of tanks used for the storage of dangerous substances when such storage is ancillary to the loading or unloading of dangerous substances, and to control the storage of substances in packaged form. Many stores and warehouses in harbour areas will be subject to the Notification of Installations Handling Hazardous Substances Regulations 1982 and in due course to tighter planning controls which are envisaged following the introduction of the latter regulations.

Effect on existing legislation

29 The proposed regulations are intended to replace the existing corpus of harbour byelaws controlling petroleum-spirit, explosives and other dangerous substances. Hence it is proposed that Section 7 of the Petroleum (Consolidation) Act 1928 and Sections 34 and 36 of the Explosives Act 1875 should be repealed, and, subject to certain transitional arrangements, most of the byelaws made under them. Details are contained in Regulation 50 and Schedule 6.

30 Harbour authorities will need to control certain activities on a local basis, for example, the quantities of highly dangerous substances which may be handled at a particular berth may need to be restricted, or the entry of tankers into certain areas may need to be prohibited if they have not been gas-freed. The regulations contain powers enabling harbour authorities to make such byelaws subject to confirmation by the Secretary of State after consultation with the Health and Safety Commission. A few existing byelaws made under the Petroleum and Explosives Acts have similar local effect, and the regulations keep such byelaws in force for a limited period, thus providing time for the making of new byelaws where needed, or for the issue of an explosives licence. Other local legislation that will become redundant will be repealed using the power in Section 80 of the Health and Safety at Work Act. Examples of such provisions appear in Parts III and IV of Schedule 6. It has not been possible to make an exhaustive study of private legislation dealing with harbour authority powers, and suggestions for additions to or amendment of Parts III and IV of Schedule 6 are invited. The repeal of legislation passed after the

Health and Safety at Work Act generally cannot be dealt with in the proposed regulations, and action to repeal any such redundant provisions would need to be initiated by the harbour authorities themselves.

Relationship of these proposals to other legislation

31 Wherever possible, the Health and Safety Commission makes proposals for legislation which apply to all work activities. However, due to the special nature of certain work activities some proposals are more narrowly based. These proposals for regulations to deal with dangerous substances in harbour areas are a case in point. Inevitably, therefore, there will be areas where specific legal obligations to deal with a particular risk may be placed in more than one set of regulations.

32 For example, Regulation 19 in these proposals deals with the precautions necessary to avoid risks to health in a confined space. It would also be appropriate to cover such hazards in other proposals being developed by HSE on behalf of HSC such as the Loading and Unloading of Ships Regulations and possibly the Control of Substances Hazardous to Health Regulations. There are a number of other similar examples.

33 In drawing up its final proposals the Commission will carefully consider how to remove or minimise these overlaps and ensure that there are no inconsistencies between the operation of these various regulations.

Cost/benefit assessment

34 To a large extent, the proposed regulations and approved code of practice codify existing byelaws for petroleum-spirit and explosives and widen their scope to include other classes of dangerous substances. The regulations also combine relevant provisions from the Conveyance in Harbours of Military Explosives Regulations 1977. Thus, subject to the fact that existing provisions have been extended to cover all classes of dangerous substances, many of the present proposals are not entirely new legislative burdens, and other provisions are often currently followed by shipping companies and berth operators as matters of good practice.

35 New requirements which may impose a significant financial burden on industry sufficient to call for particular mention include:—

The obligation on berth operators to provide fire-fighting facilities (Regulation 17(2)).

The obligation on harbour authorities to prepare emergency plans (Regulation 27).

Provisions requiring the licensing of the handling of explosives and those for security and safe handling of explosives (Regulations 36 and 39).

36 Fairly heavy costs could be involved in the precautions recommended for the loading and unloading of liquefied gases and for the avoidance of the discharge of harmful vapours or dusts to the atmosphere. In some instances, the use of expensive vapour return lines might be called for, but the provision has been worded so that the requirements will apply only where they are essential.

37 The present proposals form a regulated system of behaviour designed to avoid not only the regular low scale incident but also to contribute towards a reduction of the possibility of major catastrophes with severe economic loss, such as those which have happened in a number of ports abroad. The Health and Safety Commission believe that the costs incidental to the introduction of the new controls are commensurate with the benefits likely to be achieved.

Part 2
Dangerous Substances in Harbour Areas Regulations 198-

Draft proposals for Regulations to be made under sections 15(1), (2), (3)(a) and (c), (4), (5)(b), (6)(a) and (b) and (9), 80(1) and 82(3)(a) of, and paragraphs 1(1) to (4), 2(1), 3, 4, 6, 7, 10, 11, 12, 13(2), 14, 15(1), 16, 18(1), 20, 21(a) to (c) and 22 of Schedule 3 to, the Health and Safety at Work etc. Act 1974.

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Part 1 Interpretation and application

Citation and Commencement

1. These Regulations may be cited as the Dangerous Substances in Harbour Areas Regulations 198- and shall come into operation on 198-.

Interpretation

2.–(1) In these Regulations, unless the context otherwise requires—

'approved list' means the list published by the Health and Safety Commission entitled *Information Approved for the Classification, Packaging and Labelling of Dangerous Substances* further described in Regulation 4(1) of the Classification, Packaging and Labelling of Dangerous Substances Regulations 198 *as revised or re-issued from time to time in accordance with paragraph (2) of that Regulation;

'barge' includes any lighter or similar vessel whether self-propelled or not;

'berth' means any dock, pier, jetty, quay, wharf or similar structure (whether floating or not) at which a vessel may tie up and includes any plant or premises, other than a vessel, which is used for purposes ancillary or incidental to the loading or unloading of a dangerous substance within the curtilage of that berth;

'in bulk' in relation to carriage of a dangerous substance in a vessel means carriage of that substance in the vessel's hold, tank or cargo space which is a structural part of the vessel without any intermediate form of containment;

'classification' in relation to a dangerous substance means the classification specified in Schedule 1 in column 2 corresponding to the most hazardous of the characteristic properties of that substance specified opposite thereto in column 1 and a reference to a numbered class means a reference to the class so numbered in the said column 2;

'competent person' means an individual possessing such qualifications, training and experience that he is competent to perform the duties required of him;

'dangerous substance' means any substance (including any preparation or other mixture) which is—

(*a*) a substance which is specified in Part I of the approved list in column 1 and for which a substance identification number is given in the corresponding entry in column 2, and which has one or more of the characteristic properties specified in column 1 of Schedule 1, unless the quantity of that substance is such, or the substance is at such a dilution, that a risk to the health or safety of any person is not created by the handling of that substance;

(*b*) a substance, although not so listed, which by reason of its characteristic properties (being properties specified in column 1 of Schedule 1) creates a risk to the health or safety of any person when the substance is handled which is comparable to the risk of substances which are so listed;

(*c*) an explosive of Class 1;

(*d*) a radioactive substance of Class 7;

(*e*) an infectious substance of Class 6.2;

(*f*) an article containing a substance specified in sub-paragraphs (*a*) to (*e*) above;

'dumb craft' includes a dumb barge and a dracone;

'factory' means a factory within the meaning of section 175 of the Factories Act 1961†;

'freight container' means an article of transport equipment (other than a vehicle or packaging) used for the containment of cargo which is—

(*a*) strong enough for repeated use;

(*b*) capable of facilitating the transport of goods, by one or more modes of transport, without intermediate reloading; and

(*c*) capable of being readily handled, and of being secured during carriage and having fittings for these purposes;

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*S.I. 198-/-. †1961 c. 34.

and includes any such container carried on a chassis and any tank container;

'fume' includes gas or vapour;

'handling' in relation to a dangerous substance includes the operations of transferring that substance and cleaning, purging, gas-freeing and ballasting of any tank on a vessel which contains any of a dangerous substance or its vapour;

'harbour' means any harbour, whether natural or artificial and any port, haven, estuary, tidal or other river, canal or inland navigation waterway navigated by seagoing vessels and includes a dock, wharf or other works in or at which vessels can obtain shelter, or ship and unship goods or passengers;

'harbour area' means—

(*a*) areas of water in a harbour navigated by sea-going vessels within the statutory jurisdiction of a harbour authority;

(*b*) any berth, contiguous with the navigable areas described in sub-paragraph (*a*) above where the loading or unloading of any dangerous substance takes place;

(*c*) other land occupied by a harbour authority and used for operational purposes in connection with the loading or unloading of vessels;

(*d*) monobuoys and water surrounding them where loading and unloading take place;

(*e*) areas of water in the harbour of Par in Cornwall navigated by sea-going vessels and any berth or other land continguous with those areas used for operational purposes in connection with the loading or unloading of vessels.

'harbour authority' means any person in whom powers or duties of improving, maintaining or managing a harbour are vested under the Harbours Act 1964*, by another Act or by an order or other instrument (except a provisional order) made under another Act or by a provisional order;

'harbour craft' includes craft which are used both in a harbour and on inland waterways;

'harbour master' means the harbour master, dock master or other officer duly appointed by the harbour authority to act in such capacity or any person having authority so to act;

'hazard warning panel' means the panel required under Regulation 10, and specified in Schedule 3;

'hazard warning sign' means in relation to a dangerous substance, the hazard warning sign specified in column 3 of Schedule 1 for the classification of the substance specified in the corresponding entry in column 2 of that Schedule;

'loading and unloading' in relation to a dangerous substance include the actual operations of loading and unloading a vessel and any acts of ullaging, sounding or sampling carried out in connection with such operations and includes the handling of substances ancillary to such operations;

'master' includes any person, other than a pilot, having charge of a vessel;

'monobuoy' means a mooring buoy connected to the land by a pipe-line at which a dangerous substance may be loaded onto or unloaded from a vessel and 'monobuoy area' means the area of water surrounding a monobuoy where loading or unloading of such substances takes place;

'owner' in relation to a vessel includes any part owner, broker, charterer, consignee, agent or mortgagee in possession;

'packaged' means contained in a receptacle, freight container or vehicle;

'packaging' includes drums, boxes, sacks, cylinders and other wrappers;

'petroleum-spirit' means petroleum-spirit within the meaning of section 23 of the Petroleum (Consolidation) Act 1928†;

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*1964 c. 40. †1928 c. 32.

'receptacle' includes a portable tank, a tank container, an intermediate bulk container and any other form of packaging used for the transport of a dangerous substance, but does not include a freight container (other than a tank container) or a vehicle;

'tank barge' means a barge constructed or adapted for the carriage of liquids in bulk in its own tank;

'towing' in relation to a dumb craft, includes the propulsion of that dumb craft by pushing;

'UN list' means the Recommendations prepared by the United Nations Committee of Experts on the Transport of Dangerous Goods;

'vessel' means every description of vessel, however propelled or moved, and includes a hovercraft, a hydrofoil vessel, any thing constructed or adapted to carry persons or goods by water and a seaplane on or in the water.

(2) Where in these Regulations a duty is imposed upon the master of a vessel, then, in relation to a dumb craft, that duty shall be imposed—

(*a*) while the dumb craft is being towed, upon the master of the towing vessel;

(*b*) at any other time, upon the owner of the dumb craft.

(3) Unless the context otherwise requires, any reference in these Regulations to—

(*a*) a numbered Regulation or Schedule is a reference to the Regulation of, or Schedule to, these Regulations so numbered;

(*b*) a numbered paragraph is a reference to the paragraph so numbered in the Regulation or Schedule in which the reference appears; and

(*c*) any specified document shall operate as a reference to that document as revised or re-issued from time to time.

Application of these Regulations

3.—(1) Subject to Regulations 35(1)(*c*) and 36(2), these Regulations shall apply in every harbour area but not elsewhere.

(2) These Regulations shall apply to or in relation to any dangerous substance and to such other substances referred to in paragraphs (3) and (4) to the extent mentioned in those paragraphs, except—

(*a*) petroleum-spirit which is intended for use as a fuel for any internal combustion engine and not wholly or partly for the purpose of sale that is in a receptacle which conforms to the requirements of either—

(i) the Petroleum-Spirit (Motor Vehicles etc) Regulations 1929*, or

(ii) the Petroleum-Spirit (Plastic Containers) Regulations 1982†,

and the quantity of petroleum-spirit does not exceed the quantity specified in those Regulations;

(*b*) where the substance is—

(i) used solely in connection with the operation of a vehicle or of a vessel of less than 50 tons gross registered tonnage, and

(ii) is being carried in a tank which forms part of or is permanently attached to the vehicle or vessel, as the case may be, or is in the fuel tank of an outboard motor or a battery;

(*c*) disease producing micro-organisms or any substance, other than a substance of Class 6.2, which may be a dangerous substance by reason only that it is subject to adventitious infection by disease producing micro-organisms;

(*d*) where the dangerous substance is a liquid petroleum fuel, other than petroleum-spirit, which is carried in a vessel in a tank which forms part of or is permanently attached to it and which is used solely in connection with the operation of that vessel, and in this sub-paragraph liquid petroleum fuel includes liquefied petroleum gas, except that Regulations 15 and 19 shall apply to any such liquid petroleum fuel;

(*e*) where the dangerous substance is carried on a vessel as vessel's stores or equipment;

(*f*) a small quantity of a dangerous substance for the personal use of the master or a member of the crew or a passenger of any vessel within the harbour area;

*S.R. & O. 1929/952. †S.I. 1982/630.

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(g) a substance which is stored on land within the harbour area where such storage is not ancillary to the operations of loading or unloading of a vessel within the harbour area;

(h) a nuclear explosive device or any component thereof which contains material which has been designated by the Secretary of State as being 'special nuclear weapons materials'.

(3) Regulations 4(2) to (4), 5, 6, 12, 15, 19 and 23 shall apply to liquid hydrocarbon fuels having a flashpoint of more than 60 degrees Celsius as they apply to any flammable dangerous substance.

(4) Regulation 19 shall apply to any substance which is liable to give rise to dangerous fumes or which is liable to cause the atmosphere in any confined space to become deficient in oxygen as it applies to a dangerous substance.

(5) These Regulations shall not prejudice any action of Her Majesty's Commissioners of Customs and Excise or any requirement for approval of, authority from, clearance by or notification to Her Majesty's Commissioners of Customs and Excise or the necessity to comply with any order or conditions imposed by Her Majesty's Commissioners of Customs and Excise.

PART II Entry of dangerous substances into harbour areas

Notice of entry of dangerous substances into harbour areas

4.-(1) Subject to paragraph (4) and to Regulations 5 and 6, a dangerous substance shall not be brought into a harbour area from an inland direction, unless the consignor of that substance has given to the harbour master or, if the harbour master so directs, to the berth operator notice containing the particulars referred to in paragraph (3) not less than 24 hours before the substance is brought into the harbour area.

(2) Subject to paragraph (4) and to Regulations 5 and 6, a dangerous substance shall not be brought into a harbour area from the sea, unless the master of the vessel carrying the substance has given to the harbour master notice containing the particulars referred to in paragraph (3)—

(a) in the case of a vessel which is on or completing a voyage of less than 24 hours duration, as long as is reasonably practicable before the substance is brought into the area; or

(b) in any other case, not less than 24 hours before the substance is brought into the area;

or, in either case, such shorter time before the substance is brought into the area as the harbour master may agree.

(3) Any notice required under paragraph (1) or (2) shall be in writing or shall be transmitted in such other form as the harbour master may agree and shall contain such information as is adequate to evaluate the risk created by the substance to the health or safety of any person and, in the case of a notice under paragraph (2), shall contain the following information, namely:—

(a) where the International Maritime Organisation recommends that the vessel should have a certificate of fitness, whether it has a current certificate of fitness;

(b) in the case of a vessel which is an oil tanker which is required to have a safety construction certificate under the 1960 or 1974 Safety of Life at Sea Convention, whether it has a current safety construction certificate;

(c) details of any enclosed space in the vessel which has been fumigated and which may still contain a toxic substance when the vessel enters the harbour area.

(4) This Regulation shall not apply in relation to—

(a) a package containing a radioactive substance which is exempt from the requirements of Part II of the Radioactive Substances (Carriage by Road) (Great Britain) Regulations 1974[*] by virtue of Regulation 20 of those Regulations;

(b) in the case of entry from an inland direction, to a fumigant to be used for a fumigation to which Control of Substances Hazardous to Health Regulations 198[†] apply, where notice of intended fumigation has been given to the harbour authority in accordance with those Regulations;

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[*] S.I. 1974/1735. [†] S.I. 198-/-.

(*c*) a vessel which passes through a monobuoy area without loading or unloading any cargo there and which subsequently does not enter or remain in a harbour area;

(*d*) a British or foreign warship; or

(*e*) a dangerous substance entering the harbour area from an inland direction which may be lawfully carried through the harbour area for the purpose of being used in a factory within the harbour area;

(*f*) to the carriage of explosives in a vessel in the service of the Crown as a Royal Fleet Auxiliary where the master of the vessel has informed the harbour master that the quantity of explosives carried is within the limit of any condition in an explosives licence issued for the purposes of Part IX of these Regulations which relate to the vessel.

Power to prohibit or regulate the entry of dangerous substances into harbour areas

5.-(1) A harbour authority may, or when directed to do so by the Secretary of State shall, make rules prohibiting or regulating the entry of any dangerous substance specified in those rules into its harbour area and shall from time to time publish such rules and cause them to be prominently exhibited within that area.

(2) Rules made in accordance with paragraph (1) may not prohibit the entry into the harbour area from an inland direction of a dangerous substance which is to be carried through the harbour area for use in a factory within that area if that substance might otherwise lawfully be carried through the area.

(3) Where, in the opinion of the harbour master, the condition of any dangerous substance, of any receptacle containing a dangerous substance or of any vessel or vehicle carrying a dangerous substance is such as to create a risk to the health or safety of any person from that substance, the harbour master may give directions regulating the entry into, or requiring the removal from, the harbour area of that substance, receptacle, vessel or vehicle, as the case may be.

(4) In determining whether to give a direction under paragraph (3) in any particular case, the harbour master shall have regard to all the circumstances of that case and in particular, in the case of a vessel carrying a dangerous substance, to the safety of navigation of the vessel and to the safety of persons on board that vessel.

Power to exempt from Regulations 4 and 5(1)

6. Where it appears to a harbour authority expedient for securing the health or safety of any person, that authority may, by a certificate in writing, exempt any person from any requirement or prohibition imposed by or under Regulation 4 or 5(1) and any such exemption may be granted subject to conditions and to a limit of time and may be revoked at any time by a certificate in writing.

Part III Marking and Navigation of vessels carrying dangerous substances in harbour areas

Flags and lights to be shown on vessels having dangerous substances on board

7.—(1) Subject to Regulation 8, where a vessel within the harbour area has on board it such quantity of a dangerous substance as might, if it were to catch fire, explode or to escape in an uncontrolled manner, create a risk of serious personal injury to persons not on board the vessel, the master of that vessel shall ensure that it displays—

(*a*) in the case of a vessel with a mast—

(i) during the day between sunrise and sunset, a flag complying with the requirements of Parts I and II of Schedule 2, and

(ii) when moored or anchored, either at night between sunset and sunrise or at any other time in conditions of bad visibility, an all round red light so constructed as to give a clear uniform and unbroken light visible in conditions of good night-time visibility all round the horizon for a distance of at least 3 nautical miles; or

(*b*) in the case of a vessel without a mast—

(i) during the day between sunrise and sunset, a flag complying with the requirements of Parts I and III of Schedule 2, and

(ii) when moored or anchored, either at night between sunset and sunrise or at any other time in conditions of bad visibility, an all round red light.

(2) Any flag or light required to be displayed in accordance with paragraph (1) shall be positioned so as to be as conspicuous as is reasonably practicable, and in the case of a light, so that it is above any other light being shown by the vessel, or, if this is not reasonably practicable, so as not to cause confusion with any navigation lights.

Regulations 4 and 7 not to apply to certain ferries

8. Regulations 4 and 7 shall not apply to any ferry which for the time being operates entirely within smooth or partially smooth waters within the meaning of the Merchant Shipping (Smooth and Partially Smooth Waters) Rules 1977* and in the case of a ferry operating within partially smooth waters operates only during those periods of the year when those waters are so designated by those Rules.

Vessels near other vessels displaying the flags or lights required under Regulation 7 to proceed carefully

9.—(1) The master of any vessel which is in the vicinity of another vessel displaying the flag or light referred to in Regulation 7 shall keep his vessel at a safe distance from that vessel and shall navigate at as low a speed as is practicable in the circumstances and shall not approach alongside that vessel without the permission of the master of the vessel displaying the flag or light and of the harbour master and where that vessel is at a berth, of the berth operator.

(2) The permission, referred to in paragraph (1), of the harbour master or the berth operator may relate to a named vessel, to a class of vessels or to vessels generally.

Marking of barges carrying one or more dangerous substances

10.—(1) The master of any barge (including any tank barge) which is being used to carry one or more dangerous substances shall ensure that the barge is provided with and displays three or more hazard warning panels which shall be arranged to be visible all round the vessel and each such panel shall—

- (*a*) be weather resistant and be indelibly marked on one side only so as to comply with the provisions of Schedule 3 (which relates to the form, specification, colour and information required);
- (*b*) be either rigid or fixed so as to be rigid;
- (*c*) be marked on or securely attached to the barge in a substantially vertical plane, and if that means of attachment is by a frame, that frame shall carry no other hazard warning panels; and
- (*d*) have its lower edge at least one metre above the deck or if that is not reasonably practicable as high above the deck as is reasonably practicable.

(2) Where a tank barge has separate compartments and these are being used to carry different dangerous substances at the same time, the master of that tank barge shall ensure that each compartment which carries a dangerous substance is provided with and displays two labels one on each side which shall—

- (*a*) be weather resistant and indelibly marked on one side only so as to comply with the requirements of Schedule 3;
- (*b*) be marked on, or securely attached to, the outside of the compartment or on a frame immediately above the compartment in a substantially vertical plane so as to be visible on each side of the tank barge; and
- (*c*) have its centre as close as reasonably practicable to a position midway between the front and rear of the compartment in which the dangerous substance to which the label relates is being conveyed.

Masters of and other persons on harbour craft

11.—(1) The owner of a harbour craft which is carrying a dangerous substance or which is towing a craft carrying a dangerous substance shall ensure that—

- (*a*) the master of that harbour craft is a competent person; and
- (*b*) the master and any other person on duty on the craft is not under the influence of drink or a drug to such an extent that his capacity to carry out his duties is impaired.

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*S.I. 1977/252.

(2) The master of any harbour craft referred to in paragraph (1) shall manage that craft and any craft being towed by it with due skill, care and diligence.

Radios to be provided and used on certain vessels

12. Where a sea-going vessel or harbour craft of 50 tons gross registered tonnage or more is carrying a dangerous substance in the harbour area—

- (*a*) the owner of the vessel shall ensure that it is provided with a radio capable of receiving and transmitting in the very high frequency band; and
- (*b*) the master of that vessel shall ensure that that radio is switched on and tuned to the operational frequency of the harbour authority at all times except when the vessel is at a berth.

Berthing of vessels carrying dangerous substances

13.—(1) The master of a vessel carrying any dangerous substance or on to which any dangerous substance is to be loaded in the harbour area shall anchor, moor or berth his vessel only at such places and at such time as the harbour master may direct and shall ensure that any conditions the harbour master may impose with regard to anchoring, mooring or berthing are complied with.

(2) When he has anchored, moored or berthed his vessel, the master shall ensure that his vessel is not moved unless the harbour master permits or orders this or unless the master moves the vessel in an emergency for the sake of the safety of the persons on his vessel or on the berth or to comply with Regulation 14(1).

(3) The master shall ensure that any directions given by the harbour master as to the movement of the vessel are complied with.

(4) While the vessel is at a berth, the master shall ensure that adequate fenders are kept between the vessel and the berth.

(5) This Regulation shall not apply to any vessel on which the only dangerous substances are one or more explosives of Division 1.4.

Mobility of vessels carrying dangerous substances

14.—(1) The master of a vessel carrying any dangerous substance which if it caught fire, exploded or was released in an uncontrolled manner might create a risk of serious personal injury or death to persons not on board the vessel shall ensure that it is kept afloat and if it is at a berth, that it is capable of being moved from the berth at all times.

(2) Unless the vessel is carrying any explosive of Class 1, the harbour master may, by a certificate in writing, exempt the master from the requirements of paragraph (1) either unconditionally or subject to conditions, but before granting any such exemption the harbour master shall be satisfied that the health and safety of any person shall not be prejudiced in consequence of it.

(3) Paragraph (1) shall not apply to a vessel carrying explosives of Class 1, where any condition in an explosives licence granted for the purposes of Part IX of these Regulations which relates to that vessel, otherwise provides.

Part IV Loading, unloading and handling of dangerous substances

General duties of persons loading, unloading or handling dangerous substances

15. Any person who has to any extent control of, or who is engaged in, the handling, loading or unloading of a dangerous substance in circumstances in which these Regulations apply shall take such steps as it is reasonable for a person in his position to take, to ensure that so far as is reasonably practicable nothing in the manner in which that substance is handled, loaded, or unloaded as the case may be, is such as might create a risk to the health or safety of any person.

Information, instruction and training

16.—(1) The master of a vessel carrying any dangerous substance or on to which any dangerous substance is to be loaded shall ensure that members of the vessel's crew and other persons working on the vessel are provided with such information, instruction and training as is necessary to ensure their health and safety and to enable them to perform any operation in which they are involved with due regard to the safety of other persons.

(2) The operator of any berth where any dangerous substance is loaded or unloaded shall ensure that persons working on the berth or other persons entering the berth are provided with such information, instruction or training as is necessary to ensure their health and safety and to enable them to perform any operation in which they are involved with due regard to the safety of other persons.

(3) The employer of any employee engaged in the handling of a dangerous substance shall ensure that that employee is provided with such information, instruction or training as is necessary to ensure his safety and to enable him to perform any operation in which he is involved with due regard to the safety of other persons.

(4) The master, the berth operator or the employer as the case may be, shall keep a record of such instruction or training received by any employee in accordance with the foregoing paragraphs while that employee is in his employment and on request by that employee shall give a copy of that record to him.

Precautions to be taken against fire or explosion

17.—(1) Where a dangerous substance may give rise to a risk of fire or explosion, every person engaged in the loading, unloading or handling of that substance, the master of any vessel carrying that substance and the owner and operator of any berth on which that substance is kept or handled, shall observe all the precautions necessary for preventing, and for minimising the effect of, any such fire or explosion.

(2) Without prejudice to the generality of paragraph (1), the master and the berth operator, shall ensure that—

(*a*) adequate and suitable fire-fighting equipment is readily available on the vessel and on the berth and that such equipment is properly maintained;

(*b*) sufficient personnel, adequately trained in fire-fighting procedures are available during any period when any such dangerous substance is being loaded or unloaded;

(*c*) adequate supplies of water are available which are suitable for fire fighting purposes; and

(*d*) ready access by the emergency services is available at all times to any vessel on which any such dangerous substance is being loaded, unloaded or carried.

Certain operations on vessels forbidden unless the harbour master approves

18.—(1) Unless the harbour master has given his permission before the operation is begun, the master of any vessel carrying or which has recently carried a dangerous substance shall ensure that none of the following operations is carried out—

(*a*) the discharge of ballast or slops contaminated with any dangerous substance from the vessel's tanks;

(*b*) the cleaning or ventilation of any tank which was last used to carry a dangerous substance; or

(*c*) the pumping of bilges into which a dangerous substance has escaped.

(2) Unless the harbour master has given his permission before the operation is begun and, in a case where the vessel is at a berth, the berth operator has been notified, the master of any vessel carrying or which has recently carried any flammable dangerous substance in bulk shall ensure that none of the following operations is carried out—

(*a*) the gas freeing of any tank which was last used to carry the substance;

(*b*) the cleaning of any such tank with water, steam, detergents or other chemicals;

(*c*) the purging of any such tank with an inert gas; or

(*d*) the washing of a tank with crude oil during unloading;

and in the case of the operation referred to in sub-paragraph (*d*) above, the master shall ensure that while this operation is being carried on, the atmosphere in the tank contains less than 8 per cent of oxygen by volume and that only washing machines which are permanently fixed in the tank are used for that operation.

Dangerous fumes and lack of oxygen

19.—(1) Where a vessel is carrying or recently has carried a dangerous substance, no person shall enter any cargo or other tank, cargo hold, pump room, cofferdam or other enclosed or confined space in which dangerous fumes of that substance are liable to be present to such an extent as to involve risk of persons being overcome thereby or in which the atmosphere is or is liable to become deficient in oxygen to an extent that is likely to be injurious to health as the result of the carriage of that substance unless a responsible person has issued him with a written permit to enter that space and has, where appropriate, provided him with adequate and suitable breathing apparatus.

(2) The responsible person referred to in paragraph (1) above shall ensure so far as is practicable the absence of risk to the health and safety of any person he permits to enter a confined space.

(3) The permit referred to in paragraph (1) may lay down conditions as to the time for which the person may remain in the confined space, as to the manner in which the work in the confined space is to be done and as to the precautions he shall take.

(4) Any person who is permitted to enter a confined space by a permit referred to in paragraph (1) shall, if he enters the confined space, ensure that every condition set out in the permit is complied with.

Part V Provisions relating to dangerous substances in bulk

Certificate of fitness for bulk dangerous substances

20. A master shall not load or carry in his vessel any dangerous substance referred to in—

(*a*) Chapter XIX of the Code for the Construction and Equipment of Ships carrying Liquefied Gases in Bulk;

(*b*) Chapter XIX of the Code for Existing Ships carrying Liquefied Gases in Bulk; or

(*c*) Chapter VI of the Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk,

published in each case by the International Maritime Organisation unless either—

(*d*) he has a valid certificate of fitness appropriate to the substance issued in accordance with the appropriate code under the authority of the Government of the country of registration of the vessel and complies with any conditions of carriage laid down in that certificate; or

(*e*) the harbour master has given his permission.

Weight distribution of bulk dangerous substances

21. The master of a vessel carrying or about to carry a dangerous substance in bulk shall ensure that, during the loading or unloading of the tanks of the vessel, excessive bending moments or shearing forces are not introduced into the structure of the vessel by uneven weight distribution of any liquid.

Transfer of liquid dangerous substances between vessels

22. The master of a vessel carrying a liquid dangerous substance shall not cause or permit that substance to be transferred in bulk to another vessel unless the harbour master has given his permission in writing for that transfer to be commenced.

List of safety precautions for loading, unloading or transferring liquid dangerous substances in bulk

23.—(1) The operator of any berth where any liquid dangerous substance is loaded or unloaded in bulk shall, after consultation with the harbour authority, prepare a list showing the main safety precautions to be taken before and during the loading or unloading of liquid dangerous substances in bulk other than any transfer to which paragraph (4) applies.

(2) The loading and unloading of any liquid dangerous substance in bulk shall not begin unless the master of the vessel involved and the berth operator have filled in and each signed two copies of the list referred to in paragraph (1) to confirm that the relevant precautions set out in the list have been or, in the case of those which are to continue during loading or unloading, are being taken.

(3) The master and the berth operator shall each keep one signed copy of the list available for inspection throughout the loading or the unloading of the liquid dangerous substance, as the case may be.

(4) A liquid dangerous substance shall not be transferred by pipe-line between 2 vessels unless the masters of those vessels have—

(*a*) consulted each other on the appropriate safety precautions to be taken;

(*b*) prepared a list showing the main safety precautions to be taken before and during the transfer; and

(*c*) filled in and each signed two copies of the list referred to in sub-paragraph (*b*) of this paragraph to confirm that the relevant precautions set out in the list have been, or, in the case of those which are to continue during the transfer, are being taken.

(5) The master of each vessel involved in the transfer referred to in paragraph (4) shall keep one signed copy of the list available for inspection throughout the transfer.

Part VI Packing and identification of dangerous substances

Receptacles for dangerous substances

24.—(1) Where a dangerous substance is brought into a harbour area in a receptacle, the consignor of that substance or, in the case of a substance carried on a vessel, the master of that vessel shall ensure that—

(*a*) the receptacle is designed, constructed and secured so as to prevent any of the contents escaping when subjected to the stresses and strains of normal handling or transport except that this sub-paragraph shall not prevent the fitting of a suitable safety device;

(*b*) the receptacle and any fastening of the receptacle in so far as they are likely to come into contact with the substance are made of materials which are neither liable to be adversely affected by the substance nor liable in conjunction with the substance to form any other substance which is itself a risk to health and safety;

(*c*) the receptacle is correctly filled; and

(*d*) in the case of a receptacle containing a compressed gas, the receptacle has been appropriately tested and is properly maintained.

(2) In any proceedings against a master for an offence under this Regulation, it shall be a defence for the master to prove that before any of the substance was loaded on to the vessel he was furnished with a declaration in writing by the shipper stating that the substance was packaged in accordance with the provisions of paragraph (1) and that he did not know and could not reasonably be expected to have known that the substance was not so packaged.

Freight containers containing dangerous substances

25.—(1) A freight container containing any dangerous substance shall not be brought into a harbour area from an inland direction or loaded into a vessel in the harbour area unless the consignor of the freight container in Great Britain has ensured that the container is—

(*a*) of adequate strength to resist all the possible stresses to which it will be subjected;

(*b*) adequately maintained; and

(*c*) approved either in accordance with the International Convention for Safe Containers published on 2 December 1972* where this is applicable or by a competent authority within the meaning of the said International Convention for Safe Containers of another country.

(2) Any person bringing a freight container containing any dangerous substance into a harbour area or loading a freight container containing any dangerous substance in a harbour area shall ensure that the container is accompanied by a certificate given by the person responsible for loading the dangerous substance into the freight container certifying that the substance has been safely packed inside that container.

(3) A person opening a freight container containing any dangerous substance shall take sufficient precautions to protect himself from the effect of any spillage or escape of

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*Cmnd. 5376

any dangerous substance that has occurred inside the freight container and shall adequately ventilate the interior before entering the freight container or unloading any package from that container.

Labelling of receptacles or freight containers containing dangerous substances

26.—(1) Where a dangerous substance is brought into a harbour area in a receptacle or freight container, the consignor of that substance or in the case of a substance which is carried on a vessel, the master of that vessel shall ensure that any such receptacle which is liable to be individually handled during carriage or any such freight container is clearly and indelibly labelled to show—

(*a*) the correct technical name of the substance; and

(*b*) in accordance with Schedule 1, the nature of the danger to which it may give rise.

(2) Where a receptacle or a freight container is required to be and is labelled in accordance with—

(*a*) the International Maritime Dangerous Goods Code published by the International Maritime Organisation;

(*b*) the Radioactive Substances (Carriage by Road) (Great Britain) Regulations 1974*;

(*c*) the requirements relating to the labelling for conveyance by road of the Classification, Packaging and Labelling of Dangerous Substances Regulations 198-†;

(*d*) the Classification and Labelling of Explosives Regulations 198-‡; or

(*e*) the Dangerous Substances (Conveyance by Road in Road Tankers and Tank Containers) Regulations 1981§,

that labelling shall be deemed to comply with paragraph (1).

(3) In any proceedings against a master for an offence under this Regulation, it shall be a defence for the master to prove that he did not know and could not reasonably be expected to have known that the substance was not marked or labelled in accordance with this Regulation.

(4) As soon as practicable after all the dangerous substances and any residue have been unloaded from any receptacle or freight container the person in charge of the unloading operation shall ensure that all markings and labels which indicate that dangerous substances are contained therein are removed or obliterated from any such receptacle or freight container.

Part VII Emergency arrangements and untoward incidents

Preparation of emergency plans by harbour authorities

27.—(1) Each harbour authority shall, after consulting any body which appears to it to be appropriate, prepare an effective emergency plan detailing how emergencies which involve, affect or could affect dangerous substances in its area will be dealt with.

(2) Each harbour authority shall give adequate publicity to its plan.

Emergency arrangements at berths

28.—(1) The berth operator shall ensure that at all times while a vessel carrying, loading or unloading a dangerous substance is at the berth and at any other time when there are risks from dangerous substances—

(*a*) means of giving an effective warning of an emergency to people in the vicinity are installed at the berth;

(*b*) means of rapid communication with the emergency services are available; and

(*c*) adequate means of escape from that berth are provided for use in an emergency.

(2) As soon as practicable after the berthing of a vessel which is carrying or is to be loaded with any dangerous substance, and before the loading or unloading of that substance begins, the berth operator shall notify the master of that vessel of emergency arrangements at the berth and the means by which the alarm can be raised, and shall provide him with a written notice of the signals to be used in an emergency and of the arrangements for summoning the emergency services.

*S.I. 1974/1735. †S.I. 198-/-. ‡S.I. 198-/-. §S.I. 1981/1059.

(3) The operator of any berth where any dangerous substance is being loaded into or unloaded from a vessel in bulk or where any such substance is stored in bulk before loading or after unloading shall ensure that such information in writing is immediately available to the emergency services as will enable them to know—

(*a*) the identity, quantity and location of each such substance; and

(*b*) the nature of the dangers to which each such substance may give rise and the emergency action that should be taken.

(4) The operator of any berth where any dangerous substance otherwise than in bulk is being loaded into or unloaded from a vessel or where any such substance is stored before loading or after unloading shall ensure that such information in writing is immediately available to the emergency services as will enable them to know the identity, quantity and location of each such substance.

Untoward incidents

29.—(1) In this Regulation, 'untoward incident' means an incident involving, or threatening the safety of, a dangerous substance and which might create a risk of serious personal injury to any person or a risk to the safety of the vessel.

(2) The master of a vessel carrying a dangerous substance shall immediately inform the harbour master and if the vessel is at a berth the berth operator of any untoward incident which occurs on the vessel while it is in the harbour area.

(3) The berth operator shall immediately inform the harbour master and the master of any vessel at the berth of any untoward incident which occurs on the berth.

(4) Where an untoward incident occurs during the operation of handling, loading or unloading a dangerous substance, the person having control of that operation shall stop the operation as soon as it is safe to do so, and shall immediately report the incident to the harbour master, to the operator of any berth, the master of any vessel which might be affected by the incident and, where appropriate, the emergency services.

(5) Where an operation has been stopped in accordance with paragraph (4), it shall not be resumed until such corrective measures have been taken as make it safe to resume the operation.

Part VIII Storage of dangerous substances in harbour areas

Application of this Part

30. The provisions of this Part shall apply to the storage of any dangerous substance within a harbour area where such storage is ancillary to loading or unloading within that area, except—

(*a*) where the Highly Flammable Liquids and Liquefied Petroleum Gases Regulations 1972[*] apply to that storage;

(*b*) in the case of explosives of Class 1, to the extent that the storage is regulated by or under Part IX of these Regulations or by or under any other enactment;

(*c*) in the case of petroleum-spirit, or any other substance to which the provisions of section 1 of the Petroleum (Consolidation) Act 1928[†] were applied by the Petroleum (Mixtures) Order 1929[‡] and the Petroleum (Liquid Methane) Order 1957[§], to the extent that the storage is regulated by or under the Petroleum (Consolidation) Act 1928.

Tanks used for the storage of dangerous substances in bulk

31.—(1) The owner of any tank used for the storage of any dangerous substance in bulk shall ensure that the tank (including any equipment associated with it) is—

(*a*) properly designed, of adequate strength and of good construction from sound and suitable materials;

(*b*) suitable for the purpose for which it is being used having regard in particular to—

(i) the nature, characteristic properties and quantity of the substance being stored, and

(ii) the conditions under which the tank may be used;

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[*] S.I. 1972/917. [‡] 1928 c 32. [‡] S R & O. 1929/993. [§] S I. 1957/859.

(*c*) properly maintained; and

(*d*) sited in a safe place.

(2) A tank in relation to which paragraph (1) applies shall not he used for the storage of a dangerous substance, unless the owner of that tank and, where the tank is on a berth, the berth operator have consulted the fire authority for the harbour area with respect to the fire precautions which should be taken.

(3) A person who transfers a dangerous substance into any tank referred to in paragraph (1) shall ensure that—

(*a*) the substance is compatible with any other substance (whether dangerous or not) already in that tank;

(*b*) the substance does not cause a risk to the health or safety of any person by chemical or physical attack on the tank (including any equipment associated with it);

(*c*) the tank is not over-filled; and

(*d*) the flow rate of any liquid or powder which is liable to generate electrostatic charges is controlled so as to prevent the risk of ignition of the substance.

Storage of dangerous substances in receptacles or freight containers

32. A person who stores a dangerous substance which is in a receptacle or freight container shall ensure that—

(*a*) the conditions under which that freight container or receptacle, as the case may be, is stored are not such as might create a risk to the health or safety of any person; and

(*b*) the area in which it is stored is kept free from rubbish, vegetation and other matter where that might create any such risk.

Parking of vehicles carrying dangerous substances

33. The driver of any vehicle which is carrying a dangerous substance shall not—

(*a*) leave his vehicle unattended unless the vehicle is in an area designated as a parking area for such vehicles by the harbour authority or the berth operator; or

(*b*) park the vehicle (whether attended or not) at such a place or in such a manner as may be liable to create a risk to the health or safety of any person.

Part IX Provisions relating to explosives of Class 1

Interpretation

34. In this Part, unless the context otherwise requires—

'compatibility group' has the meaning assigned to it by Regulation 2(1) of the Classification and Labelling of Explosives Regulations 198-* and in Schedule 2 to those Regulations;

'explosives licence' means a licence issued by the Executive for the purposes of this Part;

'military explosives' has the meaning assigned to it by Regulation 2(1) of the Classification and Labelling of Explosives Regulations 198-.

Application of this Part

35.—(1) Subject to paragraph (2), the provisions of this Part which relate to licensing shall apply to—

(*a*) the entry into a harbour area of any explosive of Class 1 on a vessel;

(*b*) the loading, unloading or handling of any explosive of Class 1 within a harbour area; and

(*c*) the loading into or unloading from a vessel of any explosive of Class 1 outside a harbour area but either within Great Britain or in circumstances to which these Regulations apply by virtue of Regulation 49.

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*S.I. 198-/-.

(2) The provisions of this Part which relate to licensing shall not apply—

(*a*) in relation to explosives of Class 1—

(i) which have been classified in Division 1.4, or

(ii) of any other division (except explosives which have been classified in compatibility group L), where the total quantity of explosive involved in any activity does not exceed 10 kilograms;

(*b*) to the use of explosives by vessels at sea;

(*c*) to or in relation to the dumping of explosives at sea in accordance with the terms of a licence granted under section 2 of the Dumping at Sea Act 1974[*] or, in the case of military explosives, with the consent of the Secretary of State;

(*d*) to the carriage of explosives within the harbour area where the quantity of explosive is less than 1 tonne and the explosive is intended for immediate use in connection with harbour works or for wreck dispersal and—

(i) the consent in writing by the harbour master has been obtained; and

(ii) the explosives are conveyed and used in accordance with any conditions attached to that consent;

(*e*) to a berth which has been licensed as part of a factory or magazine under the Explosives Act 1875[†];

(*f*) in relation to military explosives which are either—

(i) under the control of the Secretary of State, or

(ii) under the control of a headquarters or of the service authorities of a visiting force within the meaning of any of the provisions of Part 1 of the Visiting Forces Act 1952[‡], and where the master of any vessel carrying those explosives has informed the harbour master that the quantity of such explosives carried is within the limit of any explosive licence condition which relates to the vessel;

(*g*) in relation to military explosives within the limits of any dockyard port defined by an Order-in-Council made under the Dockyards Ports Regulation Act 1865[§] or within the limits of the Marchwood berth and anchorage at Southampton.

Activities prohibited except under the authority of an explosives licence

36.—(1) Subject to paragraph (3), where this Regulation applies, a person shall not—

(*a*) bring any explosive of Class 1 into a harbour area in a vessel; or

(*b*) load, unload or handle any explosive of Class 1 within a harbour area,

unless the harbour authority or another person holds an explosives licence permitting that activity and the conditions attached to the licence are complied with.

(2) Subject to paragraph (3), where the Regulation applies, a person shall not load onto or unload from a vessel any explosive of Class 1 outside a harbour area, unless there is in existence an explosives licence permitting that activity and the conditions attached to the licence are complied with.

(3) Until whichever is the earlier of either—

(*a*) the date on which an application for an explosives licence was finally determined (including the determination of any appeal made under section 44 of the Health and Safety at Work etc. Act 1974); or

(*b*) 1st June 1985 or such later date as the Executive may agree in any particular case,

explosives of Class 1 may be loaded, unloaded, handled or conveyed in circumstances where, but for the provisions of this paragraph, an explosives licence would be required, if the explosives are loaded, unloaded, handled or conveyed in accordance with the byelaws relating to such explosives which were in force immediately before the coming into operation of these Regulations or, in the case of military explosives in accordance with the Conveyance in Harbours of Military Explosives Regulations 1977[¶] as in force immediately before the coming into operation of these Regulations.

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[*] 1974 c. 20. [†] 1875 c. 17. [‡] 1952 c. 67. [§] 1865 c. 125. [¶] S I 1977/890.

Applications for explosives licences

37.—(1) An application for an explosives licence or for the variation of an existing explosives licence shall be made to the Executive and the applicant shall be—

(*a*) in a case to which Regulation 36(1) applies, the harbour authority, except that, in the case of a berth contiguous with the navigable areas of water within the statutory jurisdiction of the harbour authority, the applicant may be the berth operator;

(*b*) in a case to which Regulation 36(2) applies, a person having an interest in the activities for which the licence is required,

and in either case the application shall be made in accordance with the procedure specified in Schedule 5 unless the Executive otherwise agrees.

(2) The Executive may make a charge for determining an application for an explosives licence or for the variation of an explosives licence and that charge shall be determined by the work entailed in determining the application at the rate of £25 for each man-hour expended (excluding any typing, messenger or ancillary work) and that charge shall be payable by the applicant when the decision of the Executive is notified to him.

Determination of licence applications

38.—(1) In determining an application for an explosives licence or for the variation of an existing explosives licence, the Executive shall have regard to any comments or objections received by it pursuant to paragraphs 3 and 5 of Schedule 5 and may reject the application altogether or may grant the licence or variation which may be subject to such conditions as it thinks fit and any such licence or variation may be with or without limit of time and may be varied or revoked in writing at any time.

(2) Nothing in paragraph (1) shall prevent the Executive from granting a provisional explosives licence or a provisional variation of an existing explosives licence in case of urgency and any such licence or variation may have effect for a period of up to 6 months from the date on which it was granted unless revoked in writing by the Executive before its date of expiry.

Safeguarding of explosives of Class 1

39.—(1) A harbour authority in whose area explosives of Class 1 are loaded, unloaded, handled or conveyed and the operator of a berth not operated by the harbour authority at which explosives of Class 1 are loaded, unloaded, handled or conveyed shall appoint an explosives security officer who shall ensure that adequte precautions are taken to safeguard those explosives against loss, theft or wrongful use in the harbour area.

(2) Any person handling or having custody of explosives of Class 1 in a harbour area shall take adequate precautions to safeguard those explosives against loss, theft or wrongful use and shall comply with any instructions given to him for that purpose by the explosives security officer.

(3) Any person having custody of explosives of Class 1 in a harbour area who transfers the custody of those explosives to some other person shall obtain a written receipt from that other person recording that transfer.

(4) Where explosives of Class 1 are dropped overboard during carriage or otherwise lost, the person who had previously had custody of those explosives shall forthwith report the occurrence to the police, to the explosives security officer and, in a case where the occurrence occurs within a harbour area, to the harbour master, and shall take such steps as are practicable to recover those explosives.

Vessels and vehicles loaded with explosives of Class 1 to be taken out of the harbour area

40. When loading of a vessel or a vehicle with explosives of Class 1 has been completed, the master of the vessel or the operator of that vehicle, as the case may be, shall ensure that the vessel or vehicle is taken out of the harbour area as soon as is reasonably practicable unless the harbour master otherwise agrees.

Harbour craft carrying explosives of Class 1 not to carry passengers

41.—(1) Subject to paragraph (2), the master of a harbour craft shall ensure that while the harbour craft is carrying explosives of Class 1, it does not carry any passengers.

(2) Paragraph (1) shall not apply to—

(*a*) explosives of Class 1 in division 1.4 and compatibility group S;

(*b*) to ships' pyrotechnic signals which are being carried to a vessel and which contain a total of less than 1 kilogram of explosives;

(*c*) to persons carried on the harbour craft in connection with harbour works for which the explosives are carried or who are to handle the explosives being carried.

Electro-explosive devices

42. A person shall not bring an electro-explosive device into a harbour area unless it is so constructed and packed as to be safe for carriage—

(*a*) in a field of 100 watts per square metre at all radio frequencies; or

(*b*) in the case of military explosives, in a field of 10 watts per square metre for frequencies between 30 MHz and 790 MHz.

Deteriorated explosives of Class 1

43. Where in any harbour area explosives of Class 1 are known or have been observed to have deteriorated or to have undergone any change which might significantly increase the risks attendant upon their carriage within the harbour area, the person having custody of those explosives shall not consign them for carriage within the harbour area unless he has notified the Executive and the harbour authority of the deterioration or change and has agreed with the harbour authority any additional precautions to be taken in respect of the carriage of those explosives.

Records relating to explosives of Class 1 to be kept by the harbour authority

44.—(1) The harbour authority shall keep a record of all explosives of Class 1 handled within the harbour area, other than shop goods fireworks within the meaning of Order in Council No 16A*, in any calendar year and that record shall distinguish between exports, imports and explosives in transit.

(2) Any such record (or a copy thereof) shall be sent by the harbour authority to the Executive by the 31 March of the year following the year to which the record relates.

Part X Miscellaneous and general

Power of a harbour authority to make byelaws

45.—(1) Subject to the provisions of Schedule 4, a harbour authority may make byelaws, regulating the carriage, handling, loading, unloading and storage of dangerous substances.

(2) Before coming into operation, any byelaws made in accordance with paragraph (1) shall be confirmed by the Secretary of State who shall, before confirming them, consult the Health and Safety Commission.

Enforcement of these Regulations

46.—(1) Subject to the following paragraphs of this Regulation, the Health and Safety Executive shall be responsible for enforcing these Regulations.

(2) In any harbour area where there is a harbour authority, that harbour authority shall be responsible for enforcing Parts II and III of these Regulations and Regulations 20, 22, 33 and 40 but, where there is no such authority, the Health and Safety Executive shall be responsible for enforcing those Parts and those Regulations.

(3) Notwithstanding paragraph (2), the authority responsible for enforcing Parts II and III of these Regulations and Regulations 20, 22, 33 and 40 against a harbour authority shall be the Health and Safety Executive.

Defence in proceedings for contravening these Regulations

47. In any proceedings for an offence under these Regulations, it shall be a defence for any person to prove that he took all reasonable precautions and exercised all due diligence to avoid the commission of that offence.

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*S R. & O. 1906/380.

Power to grant exemptions from these Regulations

48.—(1) Subject to paragraph (2), the Health and Safety Executive may, by a certificate in writing, exempt any person or class of persons, from any of the requirements imposed by these Regulations, and any such exemption may be granted subject to conditions and to a limit of time and may be revoked at any time by the Executive by a certificate in writing.

(2) The Executive shall not grant any such exemption unless, having regard to the circumstances of the case and in particular to—

(*a*) the conditions, if any, which it proposes to attach to the exemption; and

(*b*) any other requirements imposed by or under any enactment which apply to the case,

it is satisfied that neither the health and safety of persons, nor the security of any explosive likely to be affected by the exemption, will be prejudiced in consequence of it.

(3) The Secretary of State may, by a certificate in writing, exempt from all or any requirements or prohibitions imposed by these Regulations:

(*a*) Her Majesty's forces;

(*b*) visiting forces within the meaning of any of the provisions of Part 1 of the Visiting Forces Act 1952[*];

(*c*) any headquarters or organisation designated for the purposes of the International Headquarters and Defence Organisations Act 1964[†]; and

(*d*) any person engaged in the conveyance keeping or supply of any military explosives.

Application of these Regulations outside Great Britain

49. These Regulations shall apply in relation to any premises or activities in the territorial waters of Great Britain to which or in relation to which sections 1 to 59 of the Health and Safety at Work etc. Act 1974[‡] apply by virtue of the Health and Safety at Work etc. Act 1974 (Application outside Great Britain) Order 1977[§] as they apply in Great Britain.

Repeals, revocations and modifications

50.—(1) The following provisions are hereby repealed—

(*a*) Sections 34, 36 and 115 of the Explosives Act 1875[¶];

(*b*) Section 4 of the Explosives Act 1923[**];

(*c*) Section 7 of the Petroleum (Consolidation) Act 1928[††]; and

(*d*) Section 71(5) of the Harbours Docks and Piers Clauses Act 1847[‡‡].

(2) In the Fire Certificates (Special Premises) Regulations 1976[§§] after Regulation 3 insert the following Regulation—

'PREMISES FOR WHICH A FIRE CERTIFICATE IS NOT REQUIRED

3A. Notwithstanding Regulation 3(1), a fire certificate shall not be required for any berth to which the Dangerous Substances in Harbour Area Regulations 198- applies.'

(3) Subject to Regulation 36(3), the Conveyance in Harbours of Military Explosives Regulation 1977[¶¶] are hereby revoked.

(4) Subject to Regulation 36(3), the byelaws mentioned in Part 1 of Schedule 6 (being byelaws made under the Explosives Acts 1875 and 1923) are hereby repealed.

(5) The byelaws mentioned in column 1 of Part II of Schedule 6 (being byelaws made under the Petroleum (Consolidation) Act 1928) are hereby repealed except that the provisions mentioned in column 2 of that Schedule shall have effect until 1st June 1985 as if those byelaws had not been repealed.

(6) The local Acts and byelaws (being byelaws made under an enactment before 31st July 1974)—

(*a*) mentioned in column 1 of Part III of Schedule 6 are hereby repealed to the extent mentioned in column 2 of that Part; and

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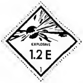
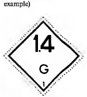
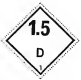
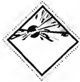
[*] 1952 c. 67 [†] 1964 c. 5. [‡] 1974 c. 37. [§] S.I. 1977/1232. [¶] 1875 c. 17. [**] 1923 c. 17 [††] 1928 c. 37. [‡‡] 1847 c. 27. [§§] S.I. 1976/2003. [¶¶] S.I. 1977/890

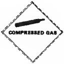
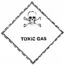
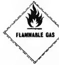
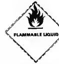
(*b*) mentioned in column 1 of Part IV of Schedule 6 are hereby repealed to the extent mentioned in column 2 of that Part with effect from 1st June 1985.

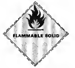
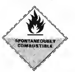
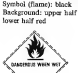
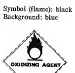
(7) The provisions of any local Act made before 31st July 1974 or of any byelaws made under any enactment before 31st July 1974 which are inconsistent with the provisions of these Regulations or of any explosives licence granted under these Regulations shall cease to have effect and that Act or those Regulations shall be modified accordingly.

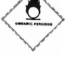
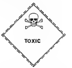
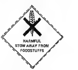
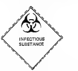
Schedule 1:
Table of characteristic properties of dangerous substances, classifications and hazard warning signs
Regulation 2 (1)

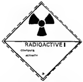
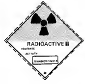
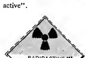
1 *Characteristic properties of the substance*	2 *Classification*	3 *Hazard warning sign*
Explosives, that is— (a) any solid or liquid substance; or (b) any mixture of solid or liquid substances or both, which is capable by chemical reaction in itself of producing gas at such a temperature and pressure and at such a speed as could cause damage to surroundings or which is designed to produce an effect by heat, light, sound, gas or smoke or a combination of these as a result of non-detonative self-sustaining exothermic chemical reactions; and any article containing one or more explosive substances;	*Class 1:* Division 1.1, 1.2 or 1.3	 Symbol (exploding bomb): black Background: orange (The hazard classification code '1.2E' shown is only an example)
	Division 1.4	 Background: orange Figures: black (The compatibility group 'G' shown is only an example) For explosives of hazard classification code 1.4S, the code '1.4S' may apear in the upper half of the label or may be shown on its own, the orange label being dispensed with. The orange label may be dispensed with for fireworks of Division 1.4 provided the word 'FIREWORK' followed by the hazard classification code is shown.

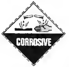
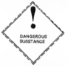
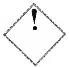
1 *Characteristic properties of the substance*	2 *Classification*	3 *Hazard warning sign*
	Division 1.5	 Background: orange Figures: black (The compatibility group 'D' shown is only an example) Where explosives of more than one division are carried in a freight container or barge, the division with the lowest number should be shown on the hazard warning sign. When Division 1.5 and Division 1.2 are carried together in a freight container or barge, the hazard warning sign displayed on the freight container or barge should be that for Division 1.1.
Explosive substances or articles defined as above which have a predominant hazard falling within a class other than Class 1.	*Classes 3 to 9*	 Symbol (exploding bomb): black Background: orange (The hazard warning sign shown above should appear on packages in addition to the hazard warning sign of the main classification).

1 *Characteristic properties of the substance*	2 *Classification*	3 *Hazard warning sign*
A substance which: (a) has a critical temperature below 50°C or which at 50°C has a vapour pressure of more than 3 bar absolute; and (b) is conveyed at a pressure of more than 500 mbar above atmospheric pressure or in liquefied form; other than a toxic gas or a flammable gas.	*Class 2* Compressed gas	 Symbol (gas cylinder): black Background: green
A substance which has a critical temperature below 50°C or which at 50°C has a vapour pressure of more than 3 bar absolute, and which is toxic.	Toxic gas	 Symbol (skull and crossbones): black Background: white
A substance which has a critical temperature below 50°C or which at 50°C has a vapour pressure of more than 3 bar absolute, and which is flammable.	Flammable gas	 Symbol (flame): black Background: red
Flammable liquids with a flash point when tested in closed cup apparatus in the divisions:— (i) less than minus 18°C; (ii) minus 18°C up to but not including 23°C; (iii) 23°C up to and including 60°C.	*Class 3*	 Symbol (flame): black Background: red

1 *Characteristic properties of the substance*	2 *Classification*	3 *Hazard warning sign*
Flammable solids, that is solids which are readily combustible under conditions normally encountered in a harbour area or which may cause or contribute to fire through friction.	*Class 4.1*	 Symbol (flame): black Background: white with vertical red stripes
Substances liable to spontaneous combustion, that is substances which are liable to spontaneous heating under conditions normally encountered in a harbour area or to heating in contact with air being then liable to catch fire.	*Class 4.2*	 Symbol (flame): black Background: upper half white, lower half red
Substances which, in contact with water, emit flammable gases, that is substances which in contact with water are liable to become spontaneously flammable or to give off flammable gases in dangerous quantities.	*Class 4.3*	 Symbol (flame): black Background: blue
Oxidising substances other than organic peroxides, that is substances which, although not themselves necessarily combustible, may, generally by yielding oxygen, cause or contribute to the combustion of other material.	*Class 5.1*	 Symbol (flame over circle): black Background: yellow

1 *Characteristic properties of the substance*	2 *Classification*	3 *Hazard warning sign*
Organic peroxides, that is any substance which is:- (a) an organic peroxide; and (b) an unstable substance which may undergo exothermic self-accelerating decomposition.	*Class 5.2*	 Symbol (flame over circle): black Background: yellow
A substance known to be so toxic to man as to afford a hazard to health during conveyance or which, in the absence of adequate data on human toxicity, is presumed to be toxic to man.	*Class 6.1* (Toxic substance)	 Symbol (skull and crossbones): black Background: white
A substance known to be toxic to man or, in the absence of adequate data on human toxicity, is presumed to be toxic to man but which is unlikely to afford a serious acute hazard to health during conveyance.	*Class 6.1* (Harmful substance)	 Symbol (St Andrew's Cross over an ear of wheat): black Background: white
Infectious substances, that is, substances which contain disease-producing micro-organisms.	*Class 6.2*	 Symbol (three crescents superimposed on a circle): black Background: white

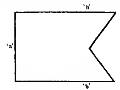
1 *Characteristic properties of the substance*	2 *Classification*	3 *Hazard warning sign*
Radioactive substances of specific activity of more than 0.002 microcuries per gram (75 Becquerels/gram).	*Class 7*	 Symbol (trefoil): black Background: white. Text (mandatory): black in bottom half of label: "Radioactive"; "Contents..."; "Activity...". One red vertical stripe must follow the word "Radioactive".  RADIOACTIVE II CONTENTS ACTIVITY TRANSPORT INDEX * Symbol (trefoil): black Background: top half yellow, bottom half white; Text (mandatory) black in bottom half of label: "Radioactive"; "Contents..."; "Activity..."; in a black outlined box "Transport index". Two red vertical stripes must follow the word "Radioactive".  RADIOACTIVE III CONTENTS ACTIVITY TRANSPORT INDEX * Symbol (trefoil): black Background: top half yellow, bottom half white; Text (mandatory) black in bottom half of label: "Radioactive"; "Contents..."; "Activity..."; in a black outlined box "Transport Index". Three red vertical stripes must follow the word "Radioactive".

1 *Characteristic properties of the substance*	2 *Classification*	3 *Hazard warning sign*
Corrosives, that is, substances which, by chemical action, will cause severe damage when in contact with living tissue, or in the case of leakage will materially damage other freight or equipment.	*Class 8*	 Symbol (acids spilling from two glass vessels and attacking a hand and a metal bar): black Background: upper half white, lower half black with white lettering and white border
Miscellaneous dangerous substances, that is, any other substance which experience has shown, or may show, to be of such a dangerous character that this class should apply to it. Any combustible liquid which is artificially heated for the purposes of transfer or any other purpose to a temperature greater than 5°C below its flashpoint is to be regarded as falling within this characteristic while at such a temperature.	*Class 9*	 (The use of this hazard warning sign on packages is optional).
Two or more dangerous substances having different classifications.	*Multi load*	

Schedule 2:
Flag indicating carriage of dangerous substances on vessels
Regulation 7

Part I Shape and colour of flag

1. The shape of the flag shall be as shown in the diagram below.



2. The flag shall be red in colour.

Part II Material and size of flag on large vessels

1. The flag shall be made of fabric.

2. The length of the side of the flag marked 'a' on the diagram shown in Part I of this Schedule shall be not less than 75 centimetres and the length of each side of the flag marked 'b' on the said diagram shall be equal to each other and shall be not less than 90 centimetres.

Part III Material and size of flag on small vessels

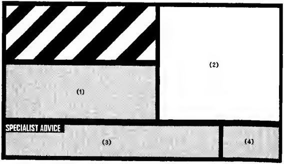
1. The flag shall be made of metal.

2. The length of the side of the flag marked 'a' on the diagram shown in Part I of this Schedule shall be not less than 45 centimetres and the length of each side of the flag marked 'b' on the said diagram shall be equal to each other and shall be not less than 54 centimetres.

Schedule 3:
Hazard warning panels
Regulations 2 (1) and 10

Form of hazard warning panels

1. Each hazard warning panel shall be in the form and colour of the following diagram:—



2. Any reference in paragraph 3 of this Schedule to a space number is a reference to the space so numbered in the diagram in paragraph 1.

Information about substances on a barge or tank barge

3. The following information shall be shown on each hazard warning panel when the barge or tank barge is carrying a dangerous substance—

(*a*) in space (1)—

(i) where only one substance is being carried and that substance is specified in the approved list or the UN list, the substance identification number for that substance, except that the chemical name, an accepted common name or the trade name of the substance may also be included;

(ii) where only one substance is being carried and that substance is not specified in the approved list or the UN list, the chemical name, an accepted common name or the trade name of the substance;

(iii) where more than one dangerous substance is being carried, the word 'Multi-load';

(*b*) in space (2)—

(i) where only one dangerous substance is being carried and that substance is specified in the approved list or the UN list, the hazard warning sign specified in the appropriate list for the classification of that substance;

(ii) where only one dangerous substance is being carried and that substance is not specified in the approved list or the UN list, the hazard warning sign specified in column 3 of Schedule 1 for the most hazardous of the characteristic properties of the substance;

(iii) where more than one dangerous substance is being carried and all of those substances are of the same classification, the hazard warning sign specified in column 3 of Schedule 1 for that classification;

(iv) where more than one dangerous substance is being carried and all those substances are not of the same classification, the hazard warning sign specified in column 3 of Schedule 1 for multi-load;

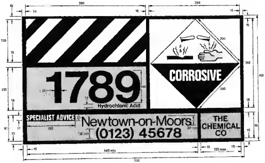
(*c*) in space (3), the telephone number indicating where specialist advice can be obtained at all times when the substance is being carried in the barge; and

(*d*) in space (4), the name of the manufacturer or owner of the substance his house symbol or both may be shown but otherwise the space shall be left blank.

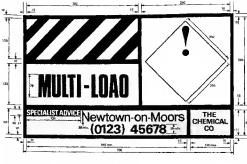
Specifications for hazard warning panels

4. The specifications for hazard warning panels shall be those set out in the diagrams below with dimensions in millimetres; larger measurements may be used, but in that case they shall be kept in the same proportions to each other except that the lettering and figures may remain as shown in the diagram, or be of intermediate size.

For single loads—

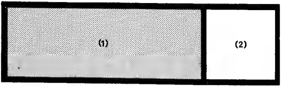


For multi-loads—



Form of labels for compartmented tank barges

5. In the case of a tank barge which has separate compartments which are being used to carry different dangerous substances at the same time the label to be attached to each compartment in accordance with Regulation 10(2) shall be in the form and colour of the following diagram except that where all the dangerous substances being carried are of the same classification, space (2) may be omitted.



6. Any reference to a space number in paragraphs 5 and 7 of this Part is a reference to the space so numbered in the diagram in paragraph 5.

Information to be shown on labels

7. The following information shall be shown on each label—

(*a*) in space (1)—

(i) where the substance is specified in the approved list or the UN list, the substance identification number of that substance except that the chemical name, an accepted common name or the trade name of the substance may also be included; or

(ii) where the substance is not specified in the approved list or the UN list, the chemical name an accepted common name or the trade name of the substance;

(*b*) in space (2)—

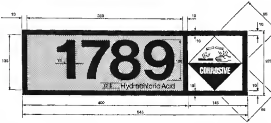
(i) where the substance is specified in the approved list or the UN list, the hazard warning sign for the classification of that substance specified in the appropriate list;

(ii) where one substance is not specified in the approved list or the UN list, the hazard warning sign of the most hazardous of the characteristic properties of the substance specified in column 3 of Schedule 1;

(*c*) where all the substances being carried have the same classification, space (2), if included in the label, may be left blank.

Specification for labels

8. The specification for labels is set out below with dimensions in millimetres; larger measurements may be used but in that case they shall be kept in the same proportions to each other except that the lettering and figures may remain as shown in the diagram or be of intermediate size.



Colour of hazard warning panels and labels

9. Where in this Schedule parts of hazard warning panels are shown as colour orange* that colour shall match the colour in the British Standard Specification BSS No 381C (1980) No 557 Light Orange.

Schedule 4:
Provisions relating to byelaws
Regulation 45(1)

1. In this Schedule, 'byelaws' means byelaws made by a harbour authority for the purposes set out in Regulation 45(1).

2. Byelaws shall not conflict with these Regulations.

3. Byelaws shall be restricted to matters relating to the harbour area.

4. Byelaws may contain their own provisions for enforcement.

5. Before a harbour authority seeks the confirmation of the Secretary of State in accordance with Regulation 45(2) it shall take the following steps—

(*a*) it shall provide the Secretary of State and the Health and Safety Commission with a draft of the byelaws it is proposing to make together with a draft of the advertisement that it intends to insert in accordance with sub-paragraph (*c*) below;

(*b*) when the Secretary of State is satisfied that the harbour authority may proceed, he shall notify the harbour authority that he is so satisfied and that he approves the draft advertisement;

(*c*) when the harbour authority receives the notification from the Secretary of State it shall insert the approved advertisement in two newspapers, one circulating locally and one nationally and that advertisement shall state—

(i) that the harbour authority intends to seek the confirmation of the Secretary of State for byelaws, which it proposes to make,
(ii) the place where and times when a copy of those proposed byelaws may be inspected by the public, and
(iii) a date, being not earlier than 28 days from the date of publication of the later of the two advertisements, by which any objections to or representations concerning the proposed byelaws should be received at the offices of the harbour authority;

(*d*) after the end of the period in which objections and representations may be made under sub-paragraph (*c*) above, the harbour authority shall send to the Secretary of State and to the Health and Safety Commission—

(i) complete copies of the newspapers in which the advertisements appeared,
(ii) copies of all objections to or representations concerning the byelaws,
(iii) a statement of any amendments to the draft byelaws which it considers should be made, and

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*Those parts which are shaded will have the colour orange as background.

(iv) a copy of the byelaws incorporating the amendments referred to in sub-paragraph (iii) above.

6. The Secretary of State may confirm the proposed byelaws or refuse to confirm them.

7. Where the Secretary of State confirms the byelaws, the harbour authority shall publish them and send copies to the Secretary of State and to the Health and Safety Commission.

Schedule 5:
Procedure for explosives licence application
Regulation 37

1. An application for an explosives licence or for the variation of an existing explosives licence shall be made in writing to the Executive and shall be accompanied by such information and plans as the Executive may require.

2. On receipt of an application, the Executive may prepare a draft licence and in such a case it may require the applicant to publish a notice giving such details of the draft licence as it may require in a form approved by the Executive.

3. A notice published pursuant to paragraph 2 shall state that any objections or comments on the application must be sent to the Executive within one month of the publication of the notice.

4. Within the time for objection or comment the applicant shall give to any interested person such additional information about the application as the Executive shall determine

5. After the time for objection or comment the Executive may amend the draft licence and if it does so may require the applicant to publish a further notice in accordance with paragraphs 2 and 3.

6. Where the application for a licence or variation relates to a berth contiguous with the navigable areas of water within the statutory jurisdiction of a harbour authority and the applicant is not the harbour authority, he shall send a copy of the application to the harbour authority.

Schedule 6:
Repeals and revocations
Regulation 50(4), (5) and (6)

Part I Harbour byelaws under the Explosives Act 1875

Aberdeen Explosives Byelaws 1877
Aberdovey Harbour Explosives Byelaws 1923
Amlwch Harbour Explosives Byelaws 1918
Ardrossan Harbour Explosives Byelaws 1895
Barry Docks Explosives Byelaws 1923
Barry Roads Anchorages (Explosives) Byelaws 1983
Beaumaris Port and Harbour Explosives Byelaws 1904
Blyth Harbour Explosives Byelaws 1925
Bo'ness Harbour Explosives Byelaws 1925
Bowling (Frisky Wharf) Explosives Byelaws 1925
Brading (IOW) Harbour Explosives Byelaws 1933
Bristol Explosives Byelaws 1876
Burntisland Harbour Explosives Byelaws 1925
Cardiff (Bute Docks) Explosives Byelaws 1924
Carnarvon Harbour Explosives Byelaws 1877
Cattewater Harbour, Plymouth, Explosives Byelaws 1924
Charlestown Harbour Explosives Byelaws 1925
Clyde Explosives Byelaws 1877 and 1888
Lower Estuary of the River Clyde Explosives Byelaws 1938
Colchester Explosives Byelaws 1877 and 1903
Conway Port and Harbour Explosives Byelaws 1877
Cowes, the River Medina and Newport I.O.W. Explosives Byelaws 1876
Dover Harbour Explosives Byelaws 1956
Dundee Harbour Explosives Byelaws 1876
Exeter Explosives Byelaws 1876

Falmouth Docks Explosives Byelaws 1962
Falmouth Harbour Explosives Byelaws 1962
Fishguard Harbour Explosives Byelaws 1906
Fleetwood Harbour and Docks Explosives Byelaws 1974
Folkestone Harbour Explosives Byelaws 1928
Fowey Harbour Explosives Byelaws 1974
Goole Explosives Byelaws 1876
Granton Harbour Explosives Byelaws 1908
Grimsby Docks Explosives Byelaws 1939
Harwich Harbour Explosives Byelaws 1965
Hayle Harbour Explosives Byelaws 1928
Heysham Harbour Explosives Byelaws 1904
Holyhead Harbour Explosives Byelaws 1968
Hull Docks Byelaws 1927
Hull (Alexandra Dock) Byelaws 1925
Hull (King George Dock) Byelaws 1925
Hull (Salt End Jetty) Byelaws 1925
The Humber Explosives Byelaws 1886
Ilfracombe Harbour Explosives Byelaws 1876
Immingham Dock Explosives Byelaws 1925
Invergordon Explosives Byelaws 1934
Ipswich Explosives Byelaws 1964
Irvine Harbour Explosives Byelaws 1982
King's Lynn Docks Explosives Byelaws 1925
King's Lynn Conservancy Board Harbour Explosives Byelaws 1925
Leith Harbour and Docks Explosives Byelaws 1937
Port of Liverpool Explosives Byelaws 1931
Port of London Explosives Byelaws 1935
Lowestoft Harbour Explosives Byelaws 1925
Lymington Harbour Explosives Byelaws 1915
Mallaig Harbour Explosives Byelaws 1925
Medway Ports Explosives Byelaws 1980
Mersey Docks and Harbour Company Explosives (Amendment) Byelaws 1983
Methil Explosives Byelaws 1925
Milford Haven Explosives Byelaws 1983
Mostyn Harbour and Port Explosives Byelaws 1961
Newhaven Harbour Explosives Byelaws 1932
Newport, Mon., Port and Harbour Explosives Byelaws 1897
Newport, Mon., (Alexandra Docks and Town Dock) Explosives Byelaws 1923
Orkney Harbour Explosives Byelaws 1978
Oulton Broad Explosives Byelaws 1923
Padstow Harbour Explosives Byelaws 1933
Penarth Harbour Explosives Byelaws 1923
Penzance Harbour Explosives Byelaws 1879 and 198-
Plymouth and Devonport Explosives Byelaws 1932
Poole Harbour Explosives Byelaws 1983
Portland Explosives Byelaws 1932
Portmadoc Harbour Explosives Byelaws 1967
Portsmouth Explosives Byelaws 1931
Pulteney Harbour Explosives Byelaws 1877

Ramsgate Harbour Explosives Byelaws 1904
Shoreham Harbour Explosives Byelaws 1983
Southampton Harbour Explosives Byelaws 1876, 1891 and 1952
Port of Sunderland Explosives Byelaws 198-
Sutton Harbour (Plymouth) Explosives Byelaws 1878
Swansea Harbour Explosives Byelaws 1924
Tayport Harbour Explosives Byelaws 1925
Tees and Hartlepool Harbour Explosives Byelaws 1980
Tyne Docks (Jarrow) Explosives Byelaws 1925
River Tyne Explosives Byelaws 1877 and 1884
Whitehaven Harbour Explosives Byelaws 1879
Workington Explosives Byelaws 1939
Yarmouth (Isle of Wight) Explosives Byelaws 1936
Yealm Harbour Explosives Byelaws 1938

Part II Harbour byelaws under the Petroleum (Consolidation) Act 1928

1 *Title of byelaws*	2 *Byelaws having effect until 1 June 1985*
Aberdeen Petroleum Spirit and Carbide of Calcium Byelaws 1950	None
Alloa Harbour, Bo'ness Harbour, Burntisland, Charlestown, Grangemouth, Methil, Tayport, Ayr and Troon Petroleum Spirit and Carbide of Calcium Byelaws 1952	None
Ardrossan Petroleum Spirit and Carbide of Calcium Byelaws 1951	None
Barrow Harbour and Docks and Silloth Docks Petroleum Spirit and Carbide of Calcium Byelaws 1951	None
Blyth Petroleum Spirit and Carbide of Calcium Byelaws 1952	None
Boston Petroleum Spirit and Carbide of Calcium Byelaws 1951	6
Bowling Harbour Petroleum Spirit and Carbide of Calcium Byelaws 1952	None
Bridgwater Canals and Runcorn and Weston Canal Petroleum Spirit and Carbide of Calcium Byelaws 1931	None
Bristol Petroleum Spirit and Carbide of Calcium Byelaws 1951	5 and 17
Caernarvon Harbour Petroleum Spirit and Carbide of Calcium Byelaws 1950	None
Caledonian Canal and Crinan Canal Petroleum Spirit and Carbide of Calcium Byelaws 1962	None
Cattedown Wharves, Plymouth, Petroleum Spirit and Carbide of Calcium Byelaws 1955	None
Cattewater Harbour, Plymouth, Petroleum Spirit and Carbide of Calcium Byelaws 1950	None
Clyde Navigation Petroleum Spirit and Carbide of Calcium Byelaws 1951	None
Dover Harbour Petroleum Spirit and Carbide of Calcium Byelaws 1949	None
Dundee Port Authority Petroleum Spirit Byelaws 1983	None
Falmouth Harbour Petroleum Spirit and Carbide of Calcium Byelaws 1960	None
Faslane Harbour Petroleum Spirit and Carbide of Calcium Byelaws 1962	None
Fishguard Harbour Petroleum Spirit and Carbide of Calcium Byelaws 1951	None

1 *Title of byelaws*	2 *Byelaws having effect until 1 June 1985*
Fleetwood Harbour and Docks Petroleum Spirit and Carbide of Calcium Byelaws 1951	None
Folkestone Harbour Petroleum Spirit and Carbide of Calcium Byelaws 1951	None
Fowey Harbour Petroleum Byelaws 1974	None
Garston Docks Petroleum Spirit and Carbide of Calcium Byelaws 1952	None
Gloucester and Sharpness Canal, Lee Navigation, the Regent's Canal Dock, the River Severn Navigation, the Weaver Navigation and Keadby Jetty Petroleum Spirit and Carbide of Calcium Byelaws 1962	6 (*c*) and (*d*), 7
Great Yarmouth Petroleum Spirit and Carbide of Calcium Byelaws 1950	None
Great Yarmouth (Rivers Yare, Bure and Waveney) Petroleum Spirit and Carbide of Calcium Byelaws 1951	None
Gourock Pier Petroleum Spirit and Carbide of Calcium Byelaws 1951	None
Granton Harbour Petroleum Spirit and Carbide of Calcium Byelaws 1950	None
Greenock Port and Harbours Petroleum Spirit and Carbide of Calcium Byelaws 1964	None
Harwich Harbour Petroleum Spirit and Carbide of Calcium Byelaws 1950 and 198-	None
Heysham Harbour Petroleum Spirit and Carbide of Calcium Byelaws 1952	None
Holyhead Harbour Petroleum Spirit and Carbide of Calcium Byelaws 1952	None
Hull, Grimsby, Immingham and Goole Petroleum Spirit and Carbide of Calcium Byelaws 1952	None
Ilfracombe Harbour Petroleum Byelaws 1871	None
Inverness Harbour Petroleum Spirit and Carbide of Calcium Byelaws 1950	None
Ipswich Harbour Petroleum Spirit and Carbide of Calcium Byelaws 1953	None
King's Lynn Docks Petroleum Spirit and Carbide of Calcium Byelaws 1953	None
King's Lynn Harbour Petroleum Spirit and Carbide of Calcium Byelaws 1950	None
Kingston-upon-Hull Harbour Petroleum Byelaws 1902	5 and 6(*b*)
Kirkcudbright Harbour Petroleum Spirit and Carbide of Calcium Byelaws 1956	None
Kyle of Lochalsh Harbour Petroleum Spirit and Carbide of Calcium Byelaws 1951	None
Port of Leith Petroleum Spirit and Carbide of Calcium Byelaws 1951	None
Port of London Petroleum Spirit Byelaws 1929, as amended	7, 8, 10 and 17
Port of London Carbide of Calcium Byelaws 1936	None
Port of London Liquid Methane Byelaws 1965	8, 10 and 14
Lymington Petroleum and Carbide of Calcium Byelaws 1915	None

1 *Title of byelaws*	2 *Byelaws having effect until 1 June 1985*
Mallaig Harbour Petroleum Spirit and Carbide of Calcium Byelaws 1951	None
Manchester Harbour and Port Petroleum Spirit and Carbide of Calcium Byelaws 1950	8 (*c*), 9, 10 (*d*), (*e*), (*g*), (*h*), (*i*) and (*j*)
Medway Ports Petroleum Spirit Byelaws 1980	None
Mersey Docks and Harbour (Port of Liverpool) Petroleum Spirit Byelaws 1961	7, 9, 10 and 11
Mersey Docks and Harbour (Port of Liverpool) Carbide of Calcium Byelaws 1953	None
Milford Haven Petroleum Spirit and Carbide of Calcium Byelaws 1960	None
Angle Bay Ocean Terminal (Milford Haven) Petroleum Spirit and Carbide of Calcium Byelaws 1963	None
Esso Petroleum Company Milford Haven Petroleum Spirit and Carbide of Calcium Byelaws 1962	None
Newhaven Harbour Petroleum Spirit and Carbide of Calcium Byelaws 1951	None
Newport (Gwent) Harbour Petroleum Spirit and Carbide of Calcium Byelaws 1951	None
Oban Harbour Petroleum Spirit and Carbide of Calcium Byelaws 1952	None
Orkney Harbours Petroleum Spirit Byelaws 1978	None
Padstow Harbour Petroleum Spirit Byelaws 1933	None
Penzance Harbour Petroleum Spirit Byelaws 1950	None
Peterhead Harbour Petroleum Spirit and Carbide of Calcium Byelaws 1932	None
Dockyard Port of Plymouth Petroleum Spirit and Carbide of Calcium Byelaws 1931	None
Plymouth (Millbay Docks) Petroleum Spirit Byelaws 1955	None
Poole Harbour Petroleum Spirit and Carbide of Calcium Byelaws 1931	None
Porthleven Harbour Petroleum Spirit and Carbide of Calcium Byelaws 1951	None
Preston Harbour Petroleum Spirit and Carbide of Calcium Byelaws 1950	None
Ramsgate Harbour Petroleum Spirit and Carbide of Calcium Byelaws 1929	None
Rothesay Carbide of Calcium Byelaws 1900	None
St. Mary's Harbour, Isles of Scilly, Petroleum Spirit and Carbide of Calcium Byelaws 1951	None
Sandwich Haven Harbour Petroleum Spirit and Carbide of Calcium Byelaws 1930	None
Shoreham Harbour Petroleum Spirit and Carbide of Calcium Byelaws 1965	None
South Wales Ports (Newport, Cardiff, Penarth, Barry, Port Talbot, Swansea, Briton Ferry and Burry Port) Petroleum Spirit and Carbide of Calcium Byelaws 1952	None
Port of Southampton Petroleum Spirit and Carbide of Calcium Byelaws 1975	5.1

1 *Title of byelaws*	2 *Byelaws having effect until 1 June 1985*
Stranraer Harbour Petroleum Spirit and Carbide of Calcium Byelaws 1951	None
Sutton Harbour, Plymouth, Petroleum Spirit and Carbide of Calcium Byelaws 1932	None
Tees and Hartlepool Harbour Petroleum Spirit Byelaws 1976	None
Truro Harbour Petroleum Spirit and Carbide of Calcium Byelaws 1951	None
River Tyne (Newcastle-upon-Tyne) Petroleum Spirit Byelaws 1953	None
Wemyss Bay Petroleum Spirit and Carbide of Calcium Byelaws 1951	None
Weymouth and Melcombe Regis Harbour Petroleum Spirit and Carbide of Calcium Byelaws 1949	3
Wisbech Petroleum Spirit and Carbide of Calcium Byelaws 1961	None
Workington Petroleum Spirit Byelaws 1939	None
Yarmouth (Isle of Wight) Harbour Petroleum Spirit and Carbide of Calcium Byelaws 1937	None
Yealm Harbour Petroleum Spirit Byelaws 1938	None

Part III Local acts and other harbour byelaws repealed

Title of instrument	*Extent of Repeal*
Chichester Harbour Conservancy Act 1971	S85
Harwich Harbour Act 1974	SS40, 42 and 43
Ipswich Dock Act 1971	S79
Port of London Act 1968	SS149, 150, 151, 152 and 166
Preston Corporation Act 1964	SS24 and 25
Rothesay Harbour Act 1831	S30
Sunderland Corporation Act 1972	SS59 and 65
Tees and Hartlepools Port Authority Act1966	SS86 and 92
Torbay Harbour Act 1970	SS37, 38 and 46
Port of Tyne Reorganisation Scheme 1967	Paragraphs 35 and 77
Aberdeen Harbour Byelaws for the Discharge and Loading of Petroleum in Bulk 1929	The whole byelaws
Port of Bristol General Byelaws 1956	Byelaws 28 and 29
Caernarvon Harbour Byelaws for Petroleum in Bulk (Other Than Petroleum Spirit) 1950	The whole byelaws
Cattewater Harbour (Plymouth) Petroleum or Mineral Oil (Other Than Dangerous Petroleum) Byelaws 1924	The whole byelaws
Goole Docks Byelaws 1912	Byelaws 19, 20, 30 and 3
Grimsby Docks Byelaws 1939	Byelaw 41
Immingham Dock Byelaws 1929	Byelaw 41
King's Lynn Docks and Railway Company Byelaws 1935	Byelaws 20, 27 and 28
Harbour and Port of Manchester Petroleum Byelaws 1929	Byelaw 5
Mersey Docks and Harbour (Port of Liverpool) Common Petroleum and Fuel Oil Byelaws 1937	Byelaws 1 to 10 and 13 to 20

Part III Local acts and other harbour byelaws repealed—contd.

Title of instrument	*Extent of Repeal*
Milford Haven Conservancy (Harbour) Byelaws 1973	Byelaw 49
Plymouth Great Western Docks General Byelaws 1894	Byelaws 3 and 16
Poole Harbour Byelaws 1901	Byelaw 28
Commercial Port of Portsmouth Byelaws 1936	Byelaws 17 and 18
Port and Harbour of Preston General Byelaws 1960	Byelaws 52 and 53
Preston Harbour Petroleum in Bulk With a Flash Point not below 73°F Byelaws 1927	The whole byelaws
Teesport Oil Berths Byelaws 1952	Byelaws 3, 4, 5, 16 and 17
Troon Harbour Byelaws and Regulations 1920	Byelaw XLII
Whitstable Harbour Byelaws 1928	Byelaw 36

Part IV Byelaws repealed with effect from 1st June 1985

Title of byelaws	*Extent of Repeal*
Harbour and Port of Manchester Byelaws 1966	Byelaw 61 and Regulations made under that Byelaw
Shoreham Harbour (Butane) Byelaws 1969	The whole byelaws

Part 3
Approved Code of Practice for the Dangerous Substances in Harbour Areas Regulations 198-

PREFACE

This Approved Code of Practice has been prepared following joint discussions between representatives of the Confederation of British Industry, the Trades Union Congress, the Local Authorities, the British Ports Association, the General Council of British Shipping, Government Departments and the Health and Safety Executive.

The Code has been approved by the Health and Safety Commission, with the consent of the Secretary of State for Transport, under section 16(1) of the Health and Safety at Work etc. Act 1974 for the purpose of providing practical guidance with respect to certain provisions of the Dangerous Substances in Harbour Areas Regulations 198- (S.I. No) and on section 2 of the Health and Safety at Work etc. Act 1974 in so far as it relates to the provision of training of employees concerned with the matters covered by the regulations. Any reference in this Code to another document does not imply approval of that document by the Health and Safety Commission under section 16(1) of the Health and Safety at Work etc. Act 1974, except to the extent necessary to give practical effect to this Code.

Although failure to comply with any provision of this Code is not in itself an offence, that failure may be used in criminal proceedings as evidence that a person has failed to discharge his duty under a section of the Health and Safety at Work etc. Act 1974 or has contravened a regulation, if the provision of the Code relates to that section of the Act or to that regulation. In such a case however it will be open to the person charged to satisfy the court that he has discharged his duty or complied with the regulation in some other way.

Words and expressions which are defined in the Health and Safety at Work etc. Act 1974 and the Dangerous Substances in Harbour Areas Regulations 198- have the same meaning in this Code unless the context requires otherwise.

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Regulation 4:
Notice of entry of dangerous substances into harbour areas

1 Regulation 4 deals with the notification to the harbour authority, or in some circumstances the berth operator, of dangerous substances brought into the harbour area from an inland direction or from the sea. The provisions in this Regulation are a re-enactment with extended application to all dangerous substances, of similar requirements formerly contained in S8 of the Petroleum (Consolidation) Act 1928 and requirements in explosives byelaws made under S34 of the Explosives Act 1875.

2 Paragraph (3) of the Regulation requires the information so notified to be adequate to evaluate the risk created by the substances to the health or safety of any person and also to include certain specified information.

3 For dangerous substances coming from an inland direction, such information should include the correct technical name of the substances and UN number where available, the quantity, weight and the appropriate classification according to Schedule 1 to the Regulations. In the case of goods of Class 1, the information should include the hazard classification code (Class, Division and compatibility group) and net explosive content, and the name of the vessel into which the explosives are to be loaded and the time of loading.

4 The 'correct technical name' means a chemical name or name by which a substance is commonly known. A trade name is not acceptable for this purpose.

5 For dangerous substances coming into the harbour area from the sea, the master should provide the correct technical name, the UN number where available, and the nature and quantity, including the number and type of packages where appropriate. In the case of goods of Class 1, the hazard classification code and net explosive content should be given. Notification should include:—

(a) the name and call sign of the vessel;

(b) the nationality and port of registration of the vessel;

(c) the overall length, draught and beam of the vessel;

(d) the intended destination within the harbour area;

(e) the estimated time of arrival at the intended destination or at the pilot station, as required by the harbour authority.

6 Masters of marine tankers carrying certain chemicals and gases, or oil in bulk, are also subject to the Merchant Shipping (Tankers) (EEC Requirements) Regulations 1981 (S.I. 1981 No. 1077). The reporting requirements of the latter regulations are limited so far as chemicals and gases are concerned to substances specified in the IMO Code for Existing Ships carrying Liquefied Gases and the IMO Code for Ships carrying Liquefied Gases, and any substance listed in Chapter VI of the IMO Code for Ships carrying Dangerous Chemicals, whereas the notification requirements of the Dangerous Substances in Harbour Areas Regulations extend to all dangerous substances within the definitions of the UN Classification and to hydrocarbon liquids of any flash point.

7 The information required to be notified under the Merchant Shipping (Tankers) (EEC Requirements) Regulations 1981 is as follows:—

(a) the name and call sign of the tanker;

(b) the country in which the tanker is registered;

(c) the overall length, draught and beam of the tanker;

(d) the harbour where the master intends first to berth the tanker;

(e) unless the master does not propose to berth the tanker at the harbour which is being entered, the estimated time of arrival at the pilot station or harbour limits of the harbour where the master intends first to berth the tanker;

(f) the nature and quantity of any chemicals, gas or oil carried by the tanker;

(g) whether the tanker is fitted with an inert gas system;

(h) whether the inert gas system, if fitted, is fully operational;

(i) whether the cargo tanks have an atmosphere which has been rendered non-flammable;

(j) whether or not a certificate has been issued in respect of the tanker:—

  (i) if its cargo includes chemicals, that it complies with the IMO Code for Ships carrying Dangerous Chemicals; and

  (ii) if its cargo includes gas, that it complies with the IMO Code for Existing Ships carrying Liquefied Gases or with the IMO Code for Ships carrying Liquefied Gases.

(k) any defect in the hull, machinery or equipment of the tanker, which may:—
- (i) affect materially the safe manoeuvrability of the tanker; or
- (ii) affect materially the safety of other vessels in or in the vicinity of or in the approaches to the harbour; or
- (iii) constitute a hazard to the marine environment; or
- (iv) constitute a hazard to persons or property on land or in the vicinity of the harbour.

8 Such information would meet most of the requirements of the Dangerous Substances in Harbour Areas Regulations, provided it is given by the time specified in Regulation 4(2). The supplementary information required by Regulation 4(3)(b) for the notification of information on any safety construction certificate held by an oil tanker and the fumigation information in Regulation 4(3)(c) should be noted.

9 An exemption is given in Regulation 4(4)(a) in terms of an exemption given by Regulation 20 of the Radioactive Substances (Carriage by Road) (Great Britain) Regulations 1974*. Consignments of radioactive substances which cause no significant health hazard including packages covered by Schedules 1 to 4 Class 7 of the IMDG Code are within the scope of this exemption.

Regulation 7:
Flags and lights to be shown on vessels having dangerous substances on board

10 Regulation 7 requires certain ships to display the B flag by day or a red light by night if the dangerous substances on board might in the event of a fire, explosion or uncontrolled release create a risk of a serious personal injury to persons not on board the vessel.

11 Ships carrying the following categories of dangerous substances should be regarded as falling within the scope of this regulation:—
- (a) more than 10kg net explosive content of goods of Division 1.1 or 250kg in the aggregate of Divisions 1.2, 1.3 and 1.5; when goods of Division 1.1 are carried simultaneously in the ship with goods of Divisions 1.2, 1.3 or 1.5, the overall limit is 10kg;
- (b) more than 25 tonnes of sodium chlorate or potassium chlorate, or more than 500 tonnes of ammonium nitrate of Class 5.1;
- (c) Bulk liquefied gases of Class 2;
- (d) Bulk liquids of Class 3 with a flashpoint not exceeding 60°C;
- (e) Bulk liquids of Classes 4, 5, 6.1, 8 and 9 of UN Groups I and II;
- (f) Bulk liquids of Class 6.1, UN Group III, if such liquids have a harmful inhalation risk;
- (g) Type B (M) packages of Class 7.

12 Ships carrying other dangerous substances of such a nature and in such a quantity that they present a hazard comparable to those specified above should also be regarded as subject to the regulation.

13 In the case of flammable liquids of Class 3 and liquefied gases of Class 2, a vessel should be deemed to be carrying a dangerous substance to which the regulation applies if it has carried such a liquid in bulk and has not been gas-freed or inerted after discharge of the liquid.

Regulation 14:
Mobility of vessels carrying dangerous substances

14 Regulation 14 requires certain vessels to be kept in a mobile state. The dangerous substances to which this provision applies include those specified in Paragraph 11 above, ie, those required to display the B flag or a red light in a conspicuous position.

15 The master of any vessel subject to Regulation 14 should while it is berthed:—
- (a) ensure that the vessel is at all times afloat and capable of being moved from the berth;
- (b) provide and have available for immediate use adequate towing lines at bow and stern, properly turned up and secured to mooring bitts and having the towing eyes passed outboard and maintained at about water level;
- (c) maintain the vessel in a state of readiness to move away.

16 The master of a vessel required to be kept in a mobile state should ensure that at all times there are sufficient crew or other personnel to maintain a proper watch for the adequate supervision of the ship and to enable the ship to be moved in an emergency and to man any shipboard appliances relevant to the safety of the ship in case of an emergency.

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*S.I. 1974/1735

Regulation 15:
General duties of persons loading, unloading or handling dangerous substances

17 Regulation 15 contains general provisions designed to ensure that loading and unloading operations and associated operations such as gas-freeing, ballasting and tank-cleaning are carried out safely. Paras 18 to 76 which follow describe the measures which should be adopted in order to meet the general requirements of this regulation.

Supervision of operations

18 The master should appoint a responsible officer of the vessel to supervise the loading or discharging of dangerous substances and should ensure that the officer is aware of the risks involved and the steps to be taken in an emergency. The responsible officer should be familiar with the correct procedure for the loading or discharging of the cargo and, where applicable, gas-freeing, ballasting and tank cleaning.

Operational and emergency information

19 The master or owner of a vessel carrying, loading or discharging dangerous substances within the harbour should ensure that information on the dangerous substances in the vessel and stability of the vessel is in the possession of the Duty Officer of the vessel, and is available for the use of the emergency services. In the case of a dumb craft, responsibility for making information available for the emergency services should fall on the person responsible for the loading or discharge operation.

20 The information provided in accordance with para 19 above should include:—

(a) the correct technical name of the product, the UN number, classification or nature of hazard, and an adequate description of the physical and chemical properties, including reactivity, as necessary for the safe containment and handling of the cargo;

(b) the quantity of the respective dangerous substances and place of stowage;

(c) action to be taken in the event of spills or leaks;

(d) counter-measures against accidental personal contact;

(e) fire-fighting procedures and fire-fighting media;

(f) procedures for loading and discharge of cargo, gas-freeing, ballasting and tank-cleaning;

(g) special equipment needed for the safe loading or discharge of the particular cargo.

Overfilling of tanks

21 During the operation of loading or discharging a dangerous substance into any tank, whether in a vessel, road or rail vehicle, or tank container, the master or berth operator, within their respective fields of responsibility, should take all necessary precautions to ensure that no tank is overfilled, taking into account the necessity for ullage.

Weather precautions

22 The master should not permit the loading or discharging of dangerous substances in weather conditions which are likely to give rise to any exceptional hazard, and should comply with any direction of the harbour master or berth operator to cease such operations when in his opinion weather conditions are too severe to permit loading or discharging.

Intoxicated persons

23 The master and berth operator within their respective fields of responsibility should ensure that no person under the influence of drink or drugs to such an extent that his actions are not under proper control is allowed to be in charge of operations involving the handling of any dangerous substances or to handle dangerous substances or to remain in an area where dangerous substances are being handled.

General precautions for handling packaged dangerous substances

24 Any person engaged in the conveyance and handling of packaged dangerous substances should exercise care to ensure, so far as reasonably practicable, that no receptacle containing dangerous substances is damaged, that no dangerous substances are allowed to escape from a receptacle and that such substances do not cause injury to the health of any person.

Note: *Radioactive substances are also subject to the Ionising Radiations Regulations 198-, which should be consulted.*

25 Any receptacle containing dangerous substances should be handled to the minimum extent reasonably practicable, and when stacked, should not be subjected to excessive weight or the risk of damage from other causes.

26 While dangerous substances are being handled, the person in charge of such operations should take precautions to prevent unauthorised persons having access to such dangerous substances, and should abstain from any act which could lead to a fire or other dangerous situation, and should use every reasonable endeavour to prevent any other person from committing any such act. A Customs Officer, is, however, an authorised person, and should be afforded the right of access to dangerous substances.

27 A person in charge of the loading or unloading of goods into a vessel should ensure that precautions are taken to avoid as far as reasonably practicable any risk of damage to packaged goods stowed on deck or on the berth by falling cargo or otherwise.

28 No person should, without reasonable cause, remove or wilfully deface any label, sign or mark attached to, or displayed on a receptacle, freight container, portable tank or intermediate bulk container.

29 Any person in charge of dangerous substances should take precautions to ensure that they are secured against theft or wrongful removal.

Railways in port areas

30 The harbour master or berth operator as appropriate should ensure that:—

(a) the movement of locomotives and rail wagons in and out of sidings in port areas where dangerous substances are being loaded or discharged is controlled by a competent person;

(b) a competent person is present at all times during the transfer of dangerous substances. Such a person should ensure that proper precautions are taken for the safe loading or unloading of the dangerous substances into or from a rail wagon.

31 Before transfer of dangerous substances between a rail tank wagon and a vessel or storage facility begins, the person in charge should ensure that:—

(a) any locomotive is removed from the siding and isolated, the points controlling the entrance to the railway siding in which wagons are standing are secured, for example, by means of clips and locks, and steps are taken to ensure that the wagons cannot be moved accidentally during the transfer of dangerous substances from or to rail tank wagons;

(b) appropriate warning notices are posted;

(c) a recognised code of signals for all aspects of the operations has been drawn up and is understood by dock and railway staff;

(d) in the case of flammable liquids and gases, all rail tank wagons and all storage equipment are electrically continuous and earthed.

32 Before rail wagons are moved after having been loaded or unloaded, the person in charge should ensure that:—

(a) all pipes or other means of transfer have been detached and removed;

(b) all valves other than safety relief valves have been securely closed;

(c) a certificate has been issued by a competent person to the effect that valves and manlids on rail tank wagons have been securely closed and all pipes and other means of transfer have been removed from the wagons.

Transfer of dangerous liquids by pipeline

33 Paragraphs 34–46 which follow deal with the measures to be adopted by the master and berth operator within their respective fields of responsibility to ensure that equipment used in the transfer of dangerous liquids in bulk is of an adequate standard and is used properly. Liquids with a flash point above 60°C are not subject to paragraphs 35 and 39–41.

Note: In the following paragraphs, the term 'pipeline' includes all connecting pipes and other means of connection, valves and other ancillary plant, apparatus and appliances used for the loading, discharge or transfer of dangerous substances.

(a) *Condition of pipelines*

34 The pipeline should be properly designed, of adequate strength and of good construction from sound and suitable material, and should be maintained so as to prevent any of the contents escaping. Any pipeline including a flexible pipe liable to damage by impact should be suitably protected. A pipeline should not be used for any substance other than those for which it is suitable, having regard to the temperature and compatibility of the product.

35 The area in the vicinity of the termination of a fixed pipeline on a berth should be well ventilated.

36 The pressure to which a pipeline is subjected should not exceed the specified maximum working pressure; in the case of liquefied flammable or toxic gases, this should be achieved by incorporating one or more safety relief devices, which should discharge to a safe place.

37 While the pipeline is rigged for use, it should be kept under supervision.

38 When a vessel is loading or discharging a dangerous substance by pipeline, the master should ensure that mooring lines are adequate to avoid the rupture of the pipeline and that the mooring lines are properly managed so as to avoid placing excessive stress on the pipeline.

(b) *Pipelines used for flammable liquids or gases*

39 Where a pipeline is used for the transfer of a flammable liquid, or a flammable liquefied gas, the pipeline should be electrically continuous except for an insulating flange (see note below) or short section of non-conductive hose close to the vessel. The pipeline on the seaward side of the insulating section should be electrically connected to the vessel, and that on the landward side should be electrically connected to the jetty earthing system.

40 Adequate precautions should be taken to prevent a short-circuit of the insulating section provided for in paragraph 39, and the earthing and insulating system should be inspected at reasonable intervals to ensure its effectiveness.

41 Other metallic connections between the berth and the vessel should be protected or arranged to ensure that there is no possibility of sparking where flammable atmospheres may be present.

Note: *The purpose of the insulating flange is to prevent any possibility of a spark when the pipe is disconnected. If the whole pipeline is electrically continuous, a strong electrical current is likely to flow along it because of jetty cathodic protection systems or for other reasons. Because of the inductive effect of the pipeline, a spark would occur at the moment of disconnection. An insulating flange prevents a heavy current flow in the pipeline and avoids the risk of sparking when the pipeline is disconnected. To provide a discharge path for any electrostatic charges that may develop, the electrical resistance of the insulating flange should not be a very high value. A resistance of 5 ohms is sufficient to prevent a heavy current in the pipeline, but such low resistance cannot readily be distinguished from a short circuit, and a resistance of about 1000 ohms is usually chosen in order to facilitate testing*

Before the introduction of the insulating flange, it was a common practice to attempt to overcome the risk of sparking by the use of a bonding cable connected across the break-point in the pipeline. The bonding cable was incapable of reducing current flow in the pipeline to a level which would have completely avoided the risk of a spark on disconnection of the pipeline, and for this reason the insulating flange was adopted.

It is a common misconception that a bonding cable connected across the insulated flange is still required; its use in such circumstances is now an unnecessary complication, and some forms of bonding could be positively dangerous

(c) *Flexible pipes*

42 The master, or berth operator, as appropriate, should be in possession of a certificate given by the supplier of any flexible pipe forming part of the pipeline, to the effect that a test has been carried out on a sample of exactly the same sort at an appropriate test pressure with a suitable safety factor so selected as to ensure that such a flexible pipe is unlikely to burst in service conditions.

(After testing, the sample flexible pipe should be discarded and not used for the transfer of dangerous substances).

43 Before a flexible pipe is used for the first time for the loading or discharging of bulk dangerous goods and subsequently at intervals not greater than one year, it should be subjected to an appropriate hydraulic pressure providing an adequate safety factor above the specified maximum service pressure.

44 Each flexible pipe should be indelibly marked so as to allow the identification of the substances for which it is suitable, its specified maximum working pressure, the test pressure and the last date on which it was tested at this pressure, and if used at service temperatures other than ambient, the maximum or minimum service temperature.

45 Before a flexible pipe is put into use on any day, it should be visually inspected by a competent person for signs of deterioration and found to be satisfactory.

46 A flexible pipe should, after having been used for the loading or discharging of highly toxic liquids (Group I of Class 6.1) or of liquefied gases, be drained before disconnection. Fittings for the closure of flexible pipes should be provided at each end, and all such flexible pipes should be closed and kept closed until they are re-connected unless they have been rendered safe by the process of draining and purging.

(d) *Testing of controls and systems*

47 Before the loading or discharge of a dangerous substance by pipeline into or from a vessel begins, the master of the vessel and the berth operator within their respective fields of responsibility should ensure that cargo-handling controls and emergency shutdown and alarm systems where fitted, which are required to be operative for the safe loading or discharging of cargo, are in good working order.

(e) *Compatibility of materials and cargoes*

48 The master of a vessel should ensure that the materials of any tank, pipe, valve, or other apparatus in the vessel with which a dangerous liquid may come into contact are of such a nature that no hazard may be caused by weakening, chemical reaction or other cause. Before loading any dangerous substance into a tank, the master should ensure that it is compatible with any other substance already in the tank.

49 The master should ensure that any substance loaded in bulk in a tank which may react in a hazardous manner with another bulk substance in another tank is adequately separated from the other incompatible cargo. Adequate separation includes:—

(a) separation from the other incompatible cargo by means of a cofferdam, void space, pump room, empty tank, or a mutually compatible cargo;

(b) separate pumping and piping systems which do not pass through the cargo tank containing incompatible cargo, unless encased in a tunnel; and

(c) a separate tank vent system.

(f) *Loading and discharge rate*

50 Before dangerous substances in bulk are loaded into or discharged from any vessel by means of a pipeline, the master of the vessel and the berth operator should agree on the maximum loading or discharging rate which can be undertaken safely, taking into account:—

(a) the arrangement and capacity of the vessel's cargo pipelines and the vapour-venting system;

(b) the maximum allowable pressure in the hoses and associated pipe-work in the vessel and on shore; and

(c) a possible pressure increase due to an emergency shut-down.

51 During loading or discharge, the master and berth operator should make frequent checks to ensure that the maximum back pressure and agreed maximum loading or discharge rate are not exceeded.

52 The flow rate of flammable liquids or powders likely to generate electrostatic charges should be controlled to prevent the risk of ignition.

(g) *Communications*

53 During the loading or unloading of dangerous liquids by means of a pipeline, the master of the vessel and the berth operator should ensure that effective communication is maintained between persons on the vessel, on the berth and at the storage installation in order that the transfer operation may be safely controlled.

(h) *Start of discharge*

54 The master of a vessel carrying dangerous substances in bulk which are to be discharged at a berth should start the discharge of such substances as soon as reasonably practicable after arrival at the berth, unless other arrangements have been agreed with the harbour master and berth operator.

(i) *Flammable or toxic vapours*

55 The master should ensure that all practicable steps are taken to prevent any escape of flammable or toxic vapour which may give rise to danger. Precautions should be taken to

prevent flammable or toxic vapour from entering galley spaces, accommodation and machinery spaces in a vessel during the loading or discharge of flammable or toxic liquids, or the loading of any bulk cargo or ballast water into tanks which have previously contained flammable or toxic liquids and which have not been freed of flammable or toxic vapour, or when tanks are being freed of flammable or toxic vapour or are being cleaned after the discharge of flammable or toxic liquids.

56 Except for vents designed to prevent excess pressure or vacuum within a vessel's tanks, all openings from cargo tanks should be kept closed during the loading or discharging of flammable or toxic liquids, or of ballast water into or from tanks containing flammable or toxic vapour. Sighting or ullage ports may be opened for operational purposes, provided any such opening is protected by an efficient flame arrester. Sighting or ullage ports in partially-enclosed spaces should be opened only with the approval of the harbour master and should be closed immediately after use.

(j) *Prevention of spillages*

57 The master should ensure that, should an incident occur during the handling of dangerous substances or ballast water contaminated with dangerous substances which necessitates a repair to the plant, pipe or connections or which interferes in any way with the uninterrupted flow of dangerous substances or ballast water, such operations are stopped and not resumed until adequate safety measures have been taken.

58 The master of a vessel carrying dangerous liquids in bulk, and the berth operator, within their respective fields of responsibility, should ensure that all practicable steps are taken to prevent any spillages of dangerous substances, on the vessel, on the berth, or into harbour waters.

59 The master should ensure in particular that:—

(a) while at berth, all scuppers of the cargo deck are kept closed except so far as is necesary to allow water only to be drained off or for the protection of the vessel and the crew, and are inspected periodically during loading and discharging to ensure that they are kept closed. Where refrigerated gases or corrosive liquids are being handled, the scuppers may be left open, provided that an ample supply of water is available at all times in the vicinity of the manifolds;

(b) a cargo hose is adequately supported in use so that no excessive strain is placed on the hose or the couplings;

(c) at the start of and at regular intervals throughout loading, discharging, ballasting and tank washing, watch is kept to ensure that dangerous liquids are not escaping through sea valves, and that when not in use, sea and overboard discharge valves connected to the cargo or ballast system are closed and lashed. When lashing is not practicable, as with hydraulic valves, some suitable means of marking should be used to indicate clearly that the valves are to remain closed;

(d) flange couplings are jointed so as to be liquid-tight or gas-tight as appropriate, with all bolt holes in the flange bolted with appropriate bolts or other suitable devices in good condition and evenly tightened;

(e) a drip tray is provided under the manifold connection, of sufficient capacity, maintained in good condition and in place throughout loading or discharging;

(f) no sea suction valve on a pipe connected to a cargo tank is open for ballast purposes before full suction has been obtained on the ballast pump.

60 The berth operator should similarly ensure compliance with provisions (d) and (e) above, and should take precautions to contain operational spillage to avoid as far as reasonably practicable any spillage into harbour waters.

(k) *Loading and discharge of liquefied gases*

61 The master and the berth operator should ensure that, during the loading or discharge of liquefied gas by pipeline, measures are taken, for example, by the use of a vapour-return line, to ensure that no gas is allowed to escape into the atmosphere, except:—

(a) in the case of operation of a safety device for the release of an accidental increase in pressure;

(b) during the venting of inert gases from a ship's tank; or

(c) with the permission of the harbour master.

62 The master and the berth operator should ensure that the loading or discharge of liquefied gas at low temperature is carried out in such a way that:—

(a) where appropriate, all tanks and pipelines are gradually and evenly cooled to prevent thermal stress;

(b) adequate arrangements are made for the safe removal of any vapours and condensate which may form in a pipeline when the pipeline is being cooled.

(l) *Vessel's stores*

63 The master and the berth operator should ensure that during the loading or discharge of dangerous substances in bulk, the loading or discharge of ballast water contaminated with dangerous substances and gas-freeing or tank-cleaning, vessel's stores are not loaded or discharged in a manner that may be liable to cause damage to the connecting pipelines or associated equipment, or may otherwise endanger the operation in progress.

(m) *Completion of operations*

64 The master and the berth operator, within their respective fields of responsibility, should ensure that after the completion of every transfer of liquid dangerous substances in bulk, all precautions are taken to render pipelines, valves and associated ancillary equipment safe. The valves of the discharging and receiving tanks should be closed, unless they are required to be open for normal plant or vessel operations. After the disconnection of the vessel from the shore pipelines, the vessel's manifold connection and the shore pipeline should be blanked off.

65 After a vessel has completed the loading or discharge of dangerous substances in bulk and any necessary voyage requirements including bunkering, ballasting and storing, the master should ensure that the vessel sails as soon as practicable, unless otherwise directed or permitted by the harbour master.

Discharge of harmful vapours or dusts to the atmosphere

66 During the loading or discharge of liquids or solids in bulk which might give rise to harmful vapours or dusts, the master and berth operator within their respective fields of responsibility should use the best practicable means of preventing the escape of such vapours or dust in a dangerous manner or in dangerous quantities. Solids which may interact with water to give off flammable or toxic gases and which are loaded, discharged or stored in bulk should be protected to avoid contact with water. Suitable precautions should be taken to ensure that no person is exposed to the risk of inhaling a dangerous concentration of any toxic gas which may be evolved by such a substance, or of inhaling dangerous concentrations of other harmful vapours or dusts.

Dust explosions

67 Where the loading or discharging of any substance in bulk, the cleaning of a hold or any other operation in a hold or on the berth is likely to give rise to dust of such a character and to such an extent as to be liable to explode on ignition, the master and berth operator within their respective fields of responsibility, should ensure that all practicable steps are taken to prevent the build up of such an explosible concentration of dust. Possible sources of ignition should be excluded or effectively enclosed at any time when an explosible concentration of dust is liable to be present and in particular no operation involving the application of heat within a hold or to the bulkheads of a hold should be permitted unless the hold has been adequately cleaned to prevent risks of igniting combustible materials or explosible dust.

Combination carriers

Note: *The term 'combination carrier' used in the following paragraph means a tank vessel designed to carry flammable liquids with a flashpoint below 60°C or alternatively solid cargoes in bulk.*

68 The master of a combination carrier which has carried flammable liquid in bulk should not in general load any solid substances in bulk into a hold unless the hold and all other cargo tanks, holds, void spaces and pumprooms are free of flammable liquid, vapour and gas.

69 The following exceptions to the general case may be applied:—

(a) spaces other than the hold into which the solid substance is to be loaded may contain flammable vapour or gas provided the atmosphere has been sufficiently purged of flammable vapour and gas and is inerted at all times while the vessel is in the harbour area, by a suitable inert gas maintained at a positive pressure, so that dilution with air will not give rise to a flammable atmosphere; and

(b) any cargo space other than one adjacent to the hold into which the solid substance is to be loaded may contain a residue of flammable liquids, whether mixed with water or not, provided the atmosphere in the space is inerted by a suitable inert gas maintained at a positive pressure.

Special precautions for the handling of explosives

(a) *Handling of packages*

70 Packages containing explosives should not be brought to a berth other than an anchorage for loading into a vessel unless the vessel is in readiness to receive it, nor should such packages be unloaded from a vessel at a berth other than an anchorage unless the vehicle by which it is to be removed is in readiness to receive it. When the loading or discharge of explosives has begun, such loading or discharge should proceed with due diligence. The master should ensure that if other dangerous goods are loaded into or from any vessel at any time during the loading or unloading of explosives or at any time when the hatches of explosives stowage compartments are open, all practicable steps are taken to ensure that the explosives are not put at risk.

71 The berth operator should indicate on the berth a protected area for the handling of explosives within which:—

(a) smoking and naked lights should be prohibited;

(b) the entry of unauthorised persons or traffic should be prohibited.

The protected area should extend at least 10 metres from the immediate area where explosives are handled. The berth operator should display appropriate notices warning that explosives are being handled and stating, where appropriate, any prohibitions on smoking, the use of naked lights and the entry of unauthorised persons or traffic.

72 The hold of any vessel and the floor and interior of any vehicle into which explosives are to be placed should be carefully cleaned and maintained in a clean condition. All rubbish should be removed from the decks and gangways of the vessel and from the protected area referred to in paragraph 71.

73 The master of a vessel should not permit the loading or unloading of packages containing explosives in inclement weather unless such packages are adequately protected, either by their own intrinsic nature or by some external means.

74 Because of the risk of powder or granular material sifting from packages containing explosive substances, shoes or boots with metal nails, metal heels or metal tips of any kind should not be worn at or near a place where such substances are being loaded or discharged unless they are suitably protected so as to avoid the possibility of an incendiv spark. This provision does not apply to articles of Class 1.

(b) *Bunkering*

75 The master should ensure that fuel oil is not loaded into a vessel's bunkers during the loading or unloading of explosives into or from the vessel, nor at any time when the hatches of the compartments in which such goods are stowed are off, unless with the permission of the harbour master. This provision does not apply to Division 1.4 S explosives.

(c) *Radio or radar transmitters*

76 During the loading or unloading of all articles of Class 1, except for those in Division 1.4 S, no radio or radar transmitter should be used within 50 metres of such explosive or pyrotechnic articles except for:—

(a) one vessel's communication transmitter, providing the power output does not exceed 1.5 kw and no part of the aerial system is within 5 metres of the explosives;

(b) vessel radiotelephone transmitters, portable transmitters and transmitters installed in cranes or other mobile equipment, providing the power output does not exceed 25 watts and no part of the aerial system is within two metres of the explosives.

Regulation 16:
Information, instruction and training

77 Section 2 of the HSW Act requires an employer to provide for the training of employees in order to ensure, so far as is reasonably practicable, the health and safety at work of his employees. In complying with this duty and that imposed by Regulation 16, a harbour authority, berth operator and master of a vessel, as the agent of the employer of the ship's crew, should, within their respective fields of responsibility, ensure that employees and crew members have received adequate training appropriate to the duties on which they are employed.

78 Such training should ensure that such persons are aware of the risks from the dangerous substances in question, are familiar with the safe practices to be followed in loading and unloading and understand the relevant provisions of the regulations. In particular, such persons should be given training to the extent necessary on the avoidance and proper control of sources of ignition (see paragraphs 84 to 110 of this Code of Practice), fire-fighting procedures, action to be taken in an emergency, and the use of protective clothing and equipment. The training of persons concerned with entry into confined spaces is referred to in paragraphs 129 and 130.

79 Harbour authorities, berth operators and masters are required by the Regulations to maintain a record of the training given in accordance with provisions of the Act. An employee who has received such training should be provided with a written record of the training he has received.

80 The master of the vessel should ensure that any member of the crew engaged in the loading or discharging of dangerous substances is made aware of the hazards associated with the cargo being handled and is instructed to act with care and to wear such protective clothing and equipment as may be required to ensure protection against such hazards. The master should provide protective clothing and equipment so required.

81 Similarly, the berth operator and any employer of persons engaged in the handling of dangerous substances should ensure that his own employees are so warned and so instructed when handling dangerous substances or when in the vicinity where such dangerous substances are being handled. The berth operator and employer should provide any protective equipment and clothing required.

82 Both the master and the berth operator within their respective areas of responsibility should warn any person, other than those referred to in paragraphs 80 and 81 above, who may board the vessel or enter the area where dangerous substances are being handled of the hazards associated with the cargo being handled and advise him of the need to wear such protective clothing and equipment as may be necessary.

Regulation 17:
Precautions to be taken against fire and explosion

SOURCES OF IGNITION

83 Regulation 17(1) deals with precautions to be taken for the prevention of fire or explosion. Sources of ignition should be avoided in places where they might give rise to danger, particularly in the vicinity of flammable atmospheres, or explosives. Paragraphs 84–110 which follow describe the precautions necessary.

Supervision of boiler fires, funnel uptakes and boiler tubes

84 While a vessel carrying dangerous substances is at a berth, the master should ensure that:—

(a) boiler fires are kept under supervision (this does not preclude the use of automatic alarms, provided that the supervisor is within hearing of the alarm);

(b) funnel uptakes and boiler tubes are not blown without the permission of the harbour master.

Use of tools and equipment

85 The master of the vessel or berth operator, within their respective fields of responsibility, should ensure that where there is a possibility of flammable vapours being ignited in the vicinity:—

(a) care should be exercised to avoid causing a spark when using tools, including those used for sampling or ullaging;

Note: *So-called non-sparking tools made from metals other than steel are only marginally less likely to give rise to an incendive spark than tools made of steel. Particles of grit are likely to become embedded in the surface of non-ferrous tools, and may cause incendive sparks on impact with ferrous or other hard metals.*

(b) no hammering or chipping or other work capable of causing ignition should be carried out.

Note: *Aluminium metal if rubbed across rusty steel may leave a smear, which, if subsequently struck, may cause an incendive spark. Direct impact by aluminium, and to an even greater extent magnesium on a rusty steel surface may cause an incendive spark.*

Restrictions on smoking, naked lights and electrical equipment etc.

(a) *Designation of Prohibited areas*

86 The master and berth operator, within their respective fields of responsibility, should designate places in the ship and on the berth where smoking, naked lights and other sources of ignition are prohibited because of the likely occurrence of a flammable atmosphere or because of the handling of flammable dangerous substances or goods of Class 1 in the vicinity. The master and berth operator should display in such places appropriate notices concerning the prohibition of smoking, naked lights and other sources of ignition.

87 No person should use a naked light or lighting or other electrical equipment including communications equipment and navigational equipment, whether portable or otherwise, in any place where a flammable atmosphere may occur, without the permission of the harbour master, unless the atmosphere has been tested by a competent person and shown to be suitable for such use. This provision does not apply to signal lamps, portable lighting, battery-operated hand lamps or other electrical equipment, including communications equipment, which are suitably explosion-protected for the conditions of use, manufactured to conform to a recognised standard and certified by a national testing body.

(b) *Vessels carrying flammable liquids or liquefied flammable gases in bulk*

88 Smoking and the use of naked lights should be completely prohibited in any vessel carrying in bulk flammable liquids or liquefied flammable gases, except in places specially designated by the master for such a purpose. The master should ensure that:—

(a) doors or portholes in the designated smoking places do not open directly on to or over the cargo deck or on to decks overlooking cargo spaces or ship-to-shore pipelines used for the transfer of flammable liquids or gases;

(b) all portholes in the designated smoking places are kept closed, and doors into passageways are kept closed except when in use; and

(c) matches and lighters are not carried in any part of the vessel where a flammable atmosphere may exist.

(c) *Loading, discharging, tank-cleaning etc.*

89 Smoking and the use of naked lights should be prohibited on any berth where flammable liquids or liquefied flammable gases are loaded or discharged, except in places specially designated by the berth operator for that purpose. Before flammable liquids or liquefied flammable gases are loaded or discharged by means of a pipeline, or tanks containing such substances are cleaned, gas-freed or inerted, or ballasting operations are carried out in tanks containing such substances or which have not been gas-freed, the master and berth operator should agree in writing on the places designated as smoking places.

(d) *Goods of Class 1*

90 During the loading or unloading of any goods of Class 1 into or from a vessel, the master and berth operator should ensure that no artificial lighting other than electrical lighting (including portable electrical lighting) is used in the vicinity of such goods. Such lighting should be suitably protected and should be provided with an adequately insulated and, where appropriate, physically protected cable so as not to be liable to cause ignition.

Repair work

91 'Hot work', ie repair work such as welding, burning, riveting and the use of power tools or implements liable to cause an incendive spark, or any operation creating the risk of fire, should not be carried out in areas of the port designated by the harbour authority or the berth operator as places where naked lights and smoking are prohibited, nor in any other place where such work may lead to hazard because of the presence of dangerous

substances, unless the harbour authority has issued a permit authorising such work. The harbour authority may at its discretion delegate power to issue such permits to the berth operator.

92 The authority issuing permits should specify in the permit any conditions necessary to ensure the safety of vessels or shore installations in the vicinity of the work. Before issuing a permit authorising hot work in the vicinity of any vessel carrying goods of Class 1 or dangerous substances in bulk, the issuing authority should consult the master of the vessel. In the case of hot work in the vicinity of any storage installations for dangerous substances, the issuing authority should also consult the berth operator.

93 Where repair work is being carried out on a shore installation, the permit should be displayed in the vicinity of the repair work during the time the work is being done.

94 Routine maintenance other than welding, burning and riveting may be carried out in engine-room or boiler-room spaces of a vessel carrying flammable liquids in bulk or flammable liquefied gas in bulk. Hot work as defined in paragraph 91 above should not be carried out in the engine-room or boiler-room spaces of such a vessel, nor in any compartment or tank in which or adjacent to which other dangerous substances are stowed, or which has not been freed of flammable gases or residue which might give rise to danger, unless the authority issuing permits has issued a permit authorising such repair work to be carried out. The permit should be displayed on the gangway or any place or means where persons embark or disembark from the vessel during the time the work is being done. Hot work should not be carried out in the vicinity of vessel's pyrotechnic signals.

95 Where permitted hot work (other than routine maintenance in engine room or boiler room spaces) as described in paragraph 94 above is carried out on board any vessel carrying liquid or liquefied dangerous substances in bulk, any vessel-to-shore pipeline used for the loading and discharging of such substances should be disconnected, and the open ends of pipelines of both vessel and shore sides of the vessel-to-shore connection should be blanked off after disconnection.

96 No repair work of any description should be carried out on the cargo tanks, associated pipework, valves and ancillary equipment of a vessel carrying a compressed or refrigerated gas in bulk, except with the permission of the harbour master and, where appropriate, the berth operator. This provision does not apply, of course, where the vessel has been completely freed of gas and provided with a gas-free certificate.

Restrictions of radio transmissions in harbour areas

97 The master of a vessel in an area within 200 metres of the shore in a harbour area or within 200 metres of any jetty or mooring place designated by the harbour authority as a place where flammable liquids with a flash point of less than 23°C or flammable gases are handled or loaded in bulk should ensure that no transmitter operating on a frequency between 300 KHz and 32 MHz is used. VHF transmissions above 40 MHz do not present a risk of ignition from transmitted power received by structures acting as aerials.

98 Transmissions from a vessel in any area in the port outside those described above should not exceed:—

(a) 1.5 kW peak power on a frequency between 4 MHz and 32 MHz;

(b) 0.4 kW peak power on a frequency between 1.5 MHz and 4 MHz;

(c) 1.0 kW peak power on frequencies up to 0.525 MHz

99 Ship-borne radars with a peak pulse power output of up to 60 kW do not present a risk of ignition from transmitted power received by structures acting as aerials. Ship-borne radar with a peak pulse power exceeding 60 kW should not be used within the following distances of the shore in a harbour area, nor within same distance of any jetty or mooring place designated by the harbour authority as above:—

(a) Radars operating below 700 MHz–300 metres

(b) Radars operating above 700 MHz–150 metres

100 The testing of a vessel's communication transmitter operating on a frequency between 300 KHz and 32 MHz or in an area in which transmissions are prohibited under paragraph 97 or ship-borne radar with a peak pulse power exceeding 60 kW in an area in which transmissions are prohibited under paragraph 99 may be permitted by the harbour master

provided that a dummy load is used, with the aerial disconnected from the transmitter and connected to earth. Normal marine radar transmissions are not a source of ignition and there is no restriction on the testing of such equipment provided that the associated electrical equipment (eg the aerial-rotating motor) does not present a source of ignition in a flammable zone.

101 Harbour authorities should publish information showing the location of places designated as in paragraph 97 in local notices to mariners.

Galley stoves and cooking appliances

102 While a vessel carrying flammable liquids or flammable gases in bulk is at a berth, the master should ensure that stoves and cooking appliances with non-immersed elements such as electric hot plates and toasters, are not used in galleys, pantries and accommodation except as agreed with the berth operator, and that galley doors or galley portholes opening directly onto or over-looking the tank-deck or a stern discharge line are kept shut.

Electrostatic charges

103 Electrostatic charges may accumulate during the loading of certain non-conducting liquids. During the loading of such liquids and for a period of 30 minutes afterwards, no metallic dipping, ullaging or sampling equipment should be introduced into or remain in the tank. Metal equipment introduced into a tank after the 30-minute delay period should at all times be earthed to the structure of the ship.

Electrical equipment

104 All items of electrical equipment situated in an area where a flammable atmosphere or explosible dusts may occur should be completely disconnected from any source of electrical supply unless the equipment is suitably explosion-protected and is used in conditions appropriate to the type of equipment in question. The assessment of whether equipment is suitably explosion-protected should take into account any connection that may be made to it on the vessel or on shore. In making any connection between ship and shore, attention should be paid to the possibility of sparks occurring from stray currents, particularly disconnecting.

Electrical connections between vessel and shore

105 The master of a ship is responsible for the electrical safety of equipment forming part of the ship's structure or provided by the ship. Any person providing an electrical power supply from the shore or other source external to the ship or providing electrical equipment for communications, monitoring, emergency shut-off etc, is responsible for the electrical safety of such equipment and connecting cable up to any point of connection with the ship's equipment.

106 The person responsible for a shore-based or other external electrical power supply equipment should ensure that:—

(a) each separate electrical circuit is protected against overload and short-circuit;

(b) each overload protective device is permanently marked with its rated current-carrying capacity and is set at the correct value for the circuit it is protecting;

(c) all conductors are adequately insulated and protected against damage and chafing;

(d) where a cable is suspended in an overhead position, it is so positioned and supported that it is not liable to damage: it should be anchored securely at the ends to prevent strain on the connections; and

(e) an earth conductor of appropriate size is provided for connection to the earth terminal of the vessel or the vessel's hull and adequate facilities are provided for connection to the external supply system earth, unless the supply system is such as not to require an earth.

107 Before switching on the external electrical supply, the person responsible should consult the master to confirm that such connection can be made without giving rise to danger.

108 The master should ensure that:—

(a) before a circuit on board a vessel carrying dangerous substances is connected to an external electrical power supply, that part of the vessel's electrical circuit to be connected to the external supply is in good order, the equipment to be energised is compatible with the characteristics of the external supply, and that suitable arrangements are made to prevent the external electrical supply being connected in parallel to the ship's electrical supply;

(b) before the external power supply is switched on, confirmation is given to the person in charge of the external electrical supply that the vessel's electrical system is in readiness to accept the external electrical supply; and

(c) means of isolating the vessel from the external electrical supply are provided in a readily accessible position on board the vessel, located immediately where the external electrical supply comes aboard the vessel.

109 Electrical connections between the shore and ship other than those referred to in paragraphs 105 to 108 should be kept to the minimum necessary for the proper functioning of the ship. Cables should be so placed and so constructed as to avoid the risk of physical damage. Earth conductors should be connected to the structure of the ship.

110 Cables and equipment used in zones where flammable atmospheres may occur should be of a type appropriate to the zone in question.

Contamination of high flashpoint liquid with low flashpoint liquid

111 Where liquids of different flash-point have been added to a tank, precautions appropriate to the lower flash point should be taken unless there is satisfactory evidence to show such precautions to be unnecessary.

Note: *A high flashpoint liquid does not at ambient temperatures give off dangerous quantities of flammable vapour. Accidents have however arisen from the ignition of flammable vapour in a tank containing a high flashpoint liquid consisting of a mixture of high and low flash point liquids added to the tank at different times In one such instance, low flashpoint liquid (crude oil) was added to a bunker tank containing a small quantity of high flash-point bunker oil At a later stage an additional quantity of bunker fuel was added, the resultant mixture being of a high flash-point The free space above the mixture contained a flammable atmosphere remaining from the period when the tank had contained a mixture predominantly consisting of low flash-point liquid. A source of ignition had disastrous consequences.*

Fire-Fighting Facilities

112 Regulation 17(2) requires the master and berth operator to ensure that adequate and suitable fire-fighting equipment is readily available and is properly maintained.

113 Ship-masters should ensure that the ship's fire-fighting equipment is in good order and ready for immediate use. Where appropriate, for example, for tankers loading or discharging flammable liquids or gases and for explosives, fire hoses should be unrolled and connected to the ship's fire main. The ship's fire-fighting arrangements, including any foam system, should be ready for immediate operation. Portable fire extinguishers ready for immediate use should be sited at strategic positions.

114 The berth operator should ensure that the berth has an adequate supply of water for fighting fire and cooling purposes, and that adequate and properly tested fire-fighting facilities together with other emergency equipment appropriate to the cargo are provided and maintained in a condition fit for immediate use in the vicinity of any vessel carrying, loading or discharging dangerous substances. The location of firefighting equipment on or adjacent to the berth should be clearly indicated, and instructions in the event of a fire should be permanently displayed.

115 Special equipment, including fire-fighting tugs, may be needed to approach a fire from the seaward side and to fight deck fires on high-sided ships.

116 Any berth used for vessels of 1000 tons grt and over should be provided with an international shore connection to supply water to the vessel's fire-fighting equipment. The international shore connection should be as defined in Regulation 5(h) Chapter II—2 of the Safety of Life at Sea Convention 1974, viz:—

"INTERNATIONAL SHORE CONNEXION

Standard dimensions of flanges for the international shore connexion required in this Chapter to be installed in the ship shall be in accordance with the following table:

Description	*Dimension*
Outside diameter	178 millimetres (7 inches)
Inner diameter	64 millimetres (2½ inches)
Bolt circle diameter	132 millimetres (5¼ inches)
Slots in flange	4 holes 19 millimetres (¾ inch) in diameter equidistantly placed on a bolt circle of the above diameter, slotted to the flange periphery
Flange thickness	14.5 millimetres (9/16 inch) minimum
Bolts and nuts	4, each of 16 millimetres (⅝ inch) diameter, 50 millimetres (2 inches) in length

The connexion shall be constructed of material suitable for 10.5 kilogrammes per square centimetre (150 pounds per square inch) service. The flange shall have a flat face on one side and the other shall have permanently attached thereto a coupling that will fit the ship's hydrant and hose. The connexion shall be kept aboard the ship together with a gasket of any material suitable for 10.5 kilogrammes per square centimetre (150 pounds per square inch) service together with four 16 millimetre (⅝ inch) bolts, 50 millimetres (2 inches) in length and eight washers."

Regulation 18:
Certain operations on vessels forbidden unless the harbour master approves

117 Regulation 18 prohibits certain operations except with the permission of the harbour master. In giving such permission under Regulation 18(2), which deals with flammable substances in bulk, the harbour master should be guided by relevant recommendations of the International Safety Guide for Oil Tankers in Terminals as follows:—

Tank cleaning—Section 8.2
Gas-freeing—Section 8.3
Crude oil washing—Section 8.4
Purging with an inert gas—Chapter 9.

Regulation 19:
Dangerous fumes and lack of oxygen

118 Regulation 19 prohibits the entry by a person into any enclosed or confined space containing dangerous fumes or in which the atmosphere is or may become deficient in oxygen to an extent that it is likely to be injurious to health except in accordance with a written permit issued by a responsible person.

119 Before any person enters an enclosed or confined space in which there is reason to suspect that the atmosphere may be contaminated by dangerous fumes or the level of oxygen may be insufficient to sustain life, the atmosphere should be tested by a competent person, who should keep a record of the tests carried out.

120 The responsible person referred to in Regulation 19(1) should not give a permit-to-work authorising a person to enter a confined space without wearing breathing apparatus unless a competent person has certified that:—

(a) the space has been tested for known or suspected dangerous fumes or a deficiency of oxygen and the atmosphere is fit for respiration;

(b) the space contains no other materials liable to give off dangerous vapours to an extent liable to be injurious to the person entering the space; and

(c) effective steps have been taken to prevent the ingress of dangerous vapours or substances liable to give off dangerous fumes.

121 Conditions in a confined space may be such that safe entry can be guaranteed only for a fixed period. In such a case, the permit-to-work should be subject to a time limitation.

122 Where a person enters a confined space without wearing breathing apparatus, the responsible person should ensure that adequate ventilation of the space is maintained throughout the period it is occupied, including periods of temporary non-occupation, and that such testing of the atmosphere as may be necessary will be carried out from time to time by a competent person whilst the space is occupied. Under no circumstances should undiluted oxygen be introduced into a confined space to 'sweeten' the air.

123 Where, for the safety of the vessel or of life in an emergency or for other sufficient reason, it is impracticable to follow the provisions of the preceding paragraphs, and it is necessary for a person to enter an enclosed or confined space containing or suspected to contain dangerous fumes or to be deficient in oxygen to an extent likely to be injurious to health, he should wear adequate and suitable breathing apparatus and where practicable a lifeline and safety harness.

Adequate and suitable breathing apparatus includes:—

(a) equipment conforming to a standard approved by HSE;

(b) equipment approved by HSE;

(c) in the case of British ships, equipment conforming to an appropriate published standard or approved by an appropriate competent authority;

(d) in the case of foreign ships, equipment conforming to an appropriate published standard or approved by an appropriate competent authority.

124 During the period that a confined space is occupied by a person wearing breathing apparatus, a responsible person should be in constant attendance at the entrance for the purpose of supervision. The person supervising the operation should be able to call on any extra help that may be needed, and should have readily available a sufficient supply of breathing apparatus of an approved type (not a canister respirator), safety harness and lifelines and suitable (resuscitation) apparatus.

125 The supervising person should maintain an adequate system of communication with the person in the space throughout the duration of the task being performed.

126 Entry into a confined space should be authorised in writing, preferably in the form of a permit-to-work. The permit should state the period for which it is valid, what work is to be carried out, where it is to be carried out and appropriate precautions to be taken before entry.

127 In addition to the risk of inhaling harmful vapour, or air with an oxygen content below that necessary to sustain life, a person entering a confined space may be exposed to risk from fire or explosion by the ignition of flammable vapour. No person should enter a space containing, or which has recently contained or is suspected of containing flammable vapour unless the space has been tested and certified to contain less than 5% of the lower explosive limit, and is maintained in that condition. No hot work should be carried out or a source of ignition introduced into a space containing flammable vapour, unless the concentration of flammable vapour is less than 1% of the lower explosive limit. The impact of aluminium on rusty steel may give rise to ignition, and the breathing apparatus, protective equipment and rescue equipment should be of a nature that will not introduce a source of ignition into a space containing more than 1% of the lower explosive limit.

128 All breathing apparatus, safety harnesses, lifelines, resuscitation equipment and any other equipment provided for use in or in connection with entry into confined spaces, and for use in emergencies, must be properly maintained and thoroughly examined at suitable intervals by a responsible person. A permanent record should be kept of such maintenance and examinations.

129 All persons likely to have to work in confined spaces, supervise such workers or form a rescue team should be properly trained so as to be aware of the dangers involved and the precautions to be taken. Such training should include practices, particularly rescue practices.

130 The operation of entering a confined space containing or suspected of containing a hazardous atmosphere requires the services of persons with qualifications appropriate to the task to be performed:—

(a) *Authority to enter*

The person giving authority to enter a confined space, usually by means of permit-to-work, should hold a position of sufficient authority to arrange for supervision of the operation, for any emergency or rescue operation, and should have the necessary background knowledge and training to be familiar with the problems encountered in entering enclosed spaces.

(b) *Testing of atmosphere*

The person concerned with tests of the atmosphere should be trained in the use of equipment for measuring levels of concentration of relevant gases or vapours and the oxygen concentration. He should be familiar with levels of concentration of relevant substances which may present a hazard, and with the risks likely to arise from the evolution of harmful vapours from residues.

(c) *Supervision*

The person supervising entry should have had training generally in the problems of entering confined spaces, and should have practical experience of the use of breathing apparatus and rescue techniques.

(d) *Entry into confined spaces*

Any person entering a confined space should have had appropriate training in the use of breathing apparatus, protective equipment and life-saving equipment. He should also have been instructed in the hazards likely to arise from relevant substances, and, where appropriate, the risks of igniting flammable vapours and precautions to be taken to avoid sources of ignition.

(e) *Rescue*

Any person forming part of a rescue team should have had, in addition to the training required for a person entering a confined space, training in the use of rescue and resuscitation equipment. Practices should be carried out from time to time in conditions representative of those likely to be met, but in a safe atmosphere.

131 Further information on the hazards attending entry into confined spaces and the precautions to be taken is contained in HSE Guidance Note GS5.

Regulation 22:
Transfer of liquid dangerous substances between vessels

132 Regulation 22 prohibits the transfer of liquid dangerous substances in bulk between vessels unless the harbour master has given permission in writing.

133 The harbour authority should, before giving such permission, ensure that the respective masters of the vessels concerned and any other person responsible for the control of such operations have sufficient relevant experience in the transfer by pipeline between vessels of the substance in question or of similar substances, and should specify in the document giving permission for the operation, the place where the operation may be conducted and any additional precautions that may be required, including the use of special safety check lists for the substance in question. (See paragraph 134). Before giving permission for such operations, harbour authorities are advised to consult the Department of Transport.

Regulation 23:
List of safety precautions for loading, unloading or transferring liquid dangerous substances in bulk

134 Regulation 23 deals with the preparation and completion of a safety check list showing the main safety precautions to be taken before, during and after the loading or discharge of liquid dangerous substances in bulk. A copy of the Ship/Shore Safety Check List adopted by IMO which will be generally suitable is shown in the Appendix.

Regulation 24:
Receptacles for dangerous substances

135 Regulation 24 contains general requirements designed to ensure the adequacy of packaging used for dangerous substances. Packagings other than those which are used for substances of Classes 2 and 7, which comply with a performance test standard as prescribed in the Recommendations of the United Nations' Committee of Experts on the Transport of Dangerous Goods, or in Annex 1 of the International Maritime Dangerous Goods Code, are deemed to be constructed of a suitable degree of robustness as required by the regulations. Packagings for substances of Class 7 should be constructed in accordance with the recommendation of the International Atomic Energy Agency.

136 Packaging performance tests should be applied to all new types and designs of packaging. Evidence of satisfactory practical use of existing types of packagings may demonstrate their compliance with the statutory requirements.

Regulation 25: Freight containers containing dangerous substances

137 Regulation 25(2) requires freight containers containing dangerous substances to be accompanied by a container packing certificate certifying that the dangerous substances have been safely packed inside the freight container. The container packing certificate should include a declaration by the person responsible for placing the packages in the freight container that:—

(a) the container was clean, dry and apparently fit to receive the packages;

(b) incompatible substances have either been excluded from the freight container or have been packed in such a way as to preclude the risk of a dangerous reaction;

(c) all packages have been externally inspected for damage, and only sound packages packed; and

(d) all packages have been properly packed in the container and secured.

Regulation 27: Preparation of emergency plans by harbour authorities

138 Regulation 27 requires harbour authorities to prepare an emergency plan setting out the measures to be taken to deal with emergencies involving dangerous substances. The emergency plan should cover the whole of the harbour area, including the navigable area within the statutory jurisdiction of the harbour authority and berths contiguous with the navigable area. The geographical scope of the plan should be stated. The plan should take into account any Local Authority emergency plan, or other emergency arrangements already in existence, including the contingency arrangements provided for by Regulation 31 of the Ionising Radiations Regulations 198-.

139 The plan should cover any type of emergency incident concerned with the conveyance or storage of dangerous substances, and should make advance arrangements for effective operational control, and for the provision of facilities for use in an emergency. It should be complete in its contents, simple to read and understand, and should be issued to all who may need to put it into effect.

TYPE OF INCIDENT

140 The plan should be sufficiently flexible to cover any type of emergency, including fire, explosion, toxic release and exposure to radiation from radioactive substances.

141 An emergency resulting from the conveyance or storage of dangerous substances may vary in degree of seriousness from a simple mishap experienced during the day-to-day handling of dangerous substances resulting, for example, in a minor escape of a dangerous substance, to the rare occasion of a major disaster in which, for example, fire may threaten explosives, there may be a breach of a large tank carrying toxic gas such as chlorine or ammonia, or the escape of flammable gas may lead to the threat of explosion.

142 Incidents may affect vessels underway, vessels alongside, vessels anchored in mid-stream, shore installations, transit warehouses, storage compounds, vehicles and packages handled at the berth.

PARTICIPANTS

143 The plan should be prepared in consultation with the organisations likely to be involved in its operation, including, for example, the Fire Brigades, Police, Ambulance, Harbour Master, port users (including petroleum and chemical companies and shipping interests), berth operators, workers' representatives, the Local Authority Emergency Planning Officer, the County Pollution Officer and the relevant water authority. The geographical scope of a harbour emergency plan may, of course, cover the area of more than one local authority.

144 Government organisations which should be brought into discussions on the plan include the Health and Safety Executive, the Department of Transport, HM Customs and Excise, the Armed Services, Ministry of Defence and HM Coastguard at local level where appropriate.

Note: Practical assistance from the Armed Forces is subject to a Ministry of Defence Circular on Military Aid to the Civil Community.

145 The extent to which organisations may participate will vary according to the nature of the incident. The plan should establish the respective responsibilities of the participants according to the magnitude and nature of the emergency.

146 The harbour authority should appoint an Emergency Planning Officer for the co-ordination of activities and liaison with the Local Authority Emergency Planning Officer.

CONTROL

(a) *Emergency control centre*

147 The harbour authority should establish an emergency control centre for the co-ordination of emergency operations within its own sphere of responsibility and for necessary co-ordination with activities of other participants in the emergency plan. The setting up of the harbour authority emergency control centre should not be taken as pre-empting the authority of Police, Fire Brigade, or other emergency service, within their own fields of responsibility.

(b) *Communications*

148 Arrangements should be made to ensure efficient communication between the emergency control centre, units of the Fire Brigade, Police and Ambulance Service, ships, fire-fighting vessels, etc. Communications between participants in the emergency plan may take the form of radio, using suitable frequencies and equipment, telex or telephone. The system to be used in any given set of circumstances should be specified and agreed by all participants. When considering the use of mobile radio-communications equipment, the danger of igniting flammable atmospheres should be taken into account.

149 Arrangements should be made for the provision of suitable means by which the alarm may be raised. This should include the raising of the alarm with the appropriate emergency service, eg, the Fire Brigade, in the event of fire, and the provision of an effective alarm system to warn those in the vicinity of imminent danger, bearing in mind the requirements of Regulation 28(1), which requires a berth operator to ensure that means of giving effective warning of an emergency to people in the vicinity are installed at berths used by vessels carrying or being loaded with a dangerous substance, and that there are means of rapid communication with the emergency services.

150 In an emergency, it may be necessary to communicate with members of a ship's crew who are unfamiliar with the English language, and advance arrangements may need to be made for interpreters to be called upon.

(c) *Control of ship movements*

151 During an emergency, the harbour authority may need to control, or possibly prohibit, the movement of vessels in the port area according to the nature of the incident. Regulation 5 gives the harbour master power to give directions regulating the entry of a vessel carrying a dangerous substance which might create a risk to the health or safety of any person. Certain vessels are required by Regulation 14 to be maintained in a state of readiness to move. The harbour master should be kept informed of the situation regularly to enable him to determine shipping movements in relation to the emergency.

152 It may be necessary to beach a ship in an emergency, and preliminary thought should be given to the designation of appropriate beaching areas.

ACCESS TO INCIDENTS

153 The emergency plan should make appropriate arrangements to ensure adequate access to incidents. An unobstructed route for emergency service vehicles is required for access to shore-side berths, and restrictions on the parking of vehicles and on the movement of vehicles on jetties may be required.

154 Alternative access routes may be needed for use in the event of the closure of one access route because of toxic emission or an explosion. The possible need to evacuate personnel in the vicinity of an incident should also be taken into account when planning access.

155 In the event of an incident, the harbour master should make arrangements with the Police to control essential routes to provide ready access to the port area by emergency service vehicles.

156 Fire-fighting vessels may be needed to combat emergencies on a ship away from the shore, and small craft may be required for transporting men and equipment and other supplies to the incident, or for the rescue or evacuation of people from the ship.

RENDEZVOUS POINTS

157 Pre-arranged rendezvous points should be organised to allow for the collection of equipment, the picking up of emergency crews and as a discharge point for casualties. The rendezvous points should be accessible at all times, clearly indicated, and, if necessary, lifting equipment such as davits should be made available. When the plan is put into operation, the rendezvous points should be notified to all concerned.

AVAILABILITY OF TECHNICAL INFORMATION

158 The need often arises during an incident for information on the identity and properties of substances involved in the incident, and the effect of ignition of the substance and its vapour, or of an escape, methods of fighting fire, and measures necessary to counteract dermal exposure, inhalation or ingestion of the substance.

159 Ship masters are required by the Safety of Life at Sea Convention to keep a list of dangerous substances carried on board ship, and will usually have appropriate parts of the IMO Emergency Schedule for the substances in question. It is desirable that the Duty Officer on a ship should have information on ship stability should the fire services find it necessary to discharge large quantities of water into the ship in the event of a fire—see paragraph 19 above.

160 Regulation 28(3) and (4) requires the berth operator to have certain information available for the use of the emergency services.

161 In drawing up the emergency plan, the harbour authority should consider what other information is likely to be required in an emergency, and how preliminary arrangements can be made for such information to be readily available. Organisations participating in the plan will be able to provide much of the information needed. The Chemsafe scheme is a further source of information and assistance, and the National Arrangements for Incidents involving Radioactivity Scheme provides assistance and advice on radioactive substances involved in an incident, when such an incident is beyond the resources available locally.

ACTION BY PARTICIPANTS

162 The plan should set out the arrangements by which the harbour authority would inform water frontage owners, the emergency services, shipping and their own staff of an incident. Services to be provided by local authorities would normally be called upon at the request of the Police. The Fire Brigade would institute its own emergency arrangements. The Ambulance Service would be responsible for informing the health administration. Provision should be made for the identification of the functions of the chief participants from the respective organisations at the scene of an incident. Arrangements should also include the provision of sufficient personnel for moving, where necessary, heavy dock equipment, as, for example, cranes and railway stock.

163 In all incidents, an Incident Control Officer should be nominated, and each organisation participating in the emergency plan should report to Incident Control on arrival at the incident.

PROVISION OF PHYSICAL RESOURCES

164 Each of the services involved will normally provide and operate its own equipment but contingency arrangements should be made for additional equipment to be available. Provision for the following should be considered:—

(a) adequate water supplies, taking into account variations in the height of the tide;

(b) availability of stocks of foam-making compound for fire-fighting purposes, particularly in areas of high danger;

(c) availability of dispersant and storage areas designated;

(d) protective clothing to enable personnel to carry out necessary duties, and an area and facilities where decontamination can take place;

(e) an area should be allocated where general first aid can be carried out;

(f) an area should be allocated and general provision made for the maintenance of breathing apparatus used by the emergency services;

(g) supply of containment booms;

(h) transport by land and water;

(i) temporary hospital and mortuary arrangements;
(j) product recovery pumps;
(k) helicopters;
(l) heavy plant and lifting equipment.

MISCELLANEOUS

165 The organisation of emergency feeding arrangements may need to be arranged in advance.

166 Provision should be made for first-aid and other medical services to be readily available in an emergency. Liaison with hospitals should be established.

167 Harbour authorities and berth operators should consider to what extent it may be necessary to make available personnel equipped and trained in the use of breathing apparatus and protective clothing for use in an emergency.

168 Where there is the possibility of a leakage of toxic gas, it may be desirable to arrange for water spray facilities to be available to knock down such gas.

169 Equipment and dispersant may be required for the treatment of spillages.

Regulation 28:
Emergency arrangements at berths

170 Regulation 28(2) requires the berth operator, as soon as practicable after the berthing of a ship carrying, or to be loaded with, a dangerous substance, to notify the master of the emergency arrangements at the berth, and the means by which the alarm can be raised, and to provide him with a written notice of the signals to be used in an emergency and the arrangements for summoning the emergency services.

171 Action to raise the alarm and communication with the emergency services will usually be done through a shore base. The berth operator should ensure that, in such circumstances, the ship's master has suitable means of communicating with such a shore base and understands the signals to be used.

172 Regulation 28(1)(c) requires a berth operator to ensure that adequate means of escape from a berth are provided for use in an emergency. At many jetties, suitable means of escape are provided by the existence of duplicate gangways connecting the jetty to the shore, so that if one route is blocked by fire or other causes, a second escape route is available. The consideration of the adequacy of means of escape at jetties will depend on the circumstances, but berth operators should take into account the foreseeable effects of fire and the presence of smoke or noxious fumes in deciding what provision should be made. If rescue boats or escape-capsules are provided, they should be readily accessible from the jetty, and due account should be taken of the likely effect of burning oil on the water.

Regulation 31:
Tanks used for the storage of dangerous substances in bulk

173 Regulation 31 deals with the construction, maintenance and siting of tanks used for the storage of dangerous substances in bulk. Before being used for liquids or gases, each tank should be tested at an appropriate pressure to ensure that it is leak-proof. For tanks intended to contain liquids or gases under pressure with a maximum working pressure exceeding 1 bar gauge, the tank should be suitably tested by an hydraulic test.

174 The choice of the area in which tanks are located and any arrangements for bunding or drainage should take account of the possibility of leakage from the tanks so that in the event of a fire or leakage, the consequences of the fire and spread of leakage are mitigated as far as practicable. A sufficient distance should be left between tanks or groups of tanks containing substances whose proximity would be likely to lead to an escalation of the consequences in the event of loss of containment or fire. The distances to be left between tanks will depend on the nature and the degree of hazard of the contents of the tanks.

Regulation 32:
Storage of dangerous substances in receptacles or freight containers
Regulation 33:
Parking of vehicles carrying dangerous substances

175 Regulations 32 and 33 deal with the safe storage of packages and freight containers, and the parking of vehicles carrying dangerous substances. Any package containing dangerous goods or a vehicle (when unattended and parked in a segregated area) or a freight container containing dangerous goods should be so stored or parked that in the event of fire or leakage the risk of interaction with other dangerous goods is kept at a reasonably safe level. For guidance on the storage of radioactive materials, reference should be made to the 'Code of Practice for the carriage of radioactive materials through ports' published by the Department of Transport. Areas where packages are stored should be properly supervised and regularly inspected to ensure that freight containers, tank

containers and packages are not leaking or damaged. Toxic and harmful substances should be so stored as to prevent contamination of foodstuffs in the event of leakage.

Regulation 39: Safeguarding of explosives of Class 1

176 Regulation 39 deals with measures to be taken to safeguard explosives against loss, theft and wrongful use.

177 Any person who transfers the responsibility for goods of Class 1 to another person should under the provisions of Regulation 39(3) obtain a receipt giving details of the number of packages of such goods being transferred together with the nature of their contents. Records of transfers should be retained for one month. If at the time of such transfer of responsibility, a package shows signs of having been damaged or tampered with, the transferee should ensure:—

(a) that any such indication is reported immediately to the harbour master, the explosives security officer and the police; and

(b) that any package from which it appears that goods of Class 1 may be missing is temporarily set aside under surveillance for examination.

178 If, in the course of loading, unloading or conveyance of goods of Class 1 in a harbour area, any package containing such goods, or the sealing of any such package, appears to be damaged, the person in charge of the package should set it aside temporarily under surveillance, for examination and repair, or safe and secure disposal.

179 If any goods of Class 1 are spilled or escape from the package in which they are contained, the person in immediate control of them should ensure that:—

(a) after consulting a competent person, suitable arrangements are made for their collection;

(b) any deficiency in the amount so collected is immediately reported to the explosives security officer and police;

(c) the occurrence is immediately reported to the harbour master;

(d) after consulting a competent person, safe and secure arrangements are made for repacking the goods, or in the case of goods which are not repacked, that the police and explosives security officer are consulted on secure arrangements for disposal of such goods.

In the case of military explosives, the term 'competent person' means the authorised representative of the Ministry of Defence.

180 The master should ensure that:—

(a) a responsible person is present at all times when compartments containing goods of Class 1 are open; in the case of military explosives, the term responsible person means the authorised representative of the Ministry of Defence;

(b) unauthorised persons are not permitted access to spaces in which such goods are stowed; (Customs officials should not be regarded as unauthorised persons);

(c) magazines and hatches of compartments containing explosives are always secured against unauthorised entry when loading is completed, or when loading or unloading is stopped;

(d) all goods of Class 1 are tallied into and out of the vessel;

(e) packages containing goods of Class 1 are not opened on board the vessel except as may be necessary in the case of damaged packages.

APPENDIX Ship/shore safety check list

Ships Name ______________________________

Berth ______________________ **Port** ______________________

Date of Arrival ______________________ **Time of Arrival** ______________________

INSTRUCTIONS FOR COMPLETION

The safety of operations requires that all questions should be answered affirmatively ☑ If an affirmative answer is not possible, the reason should be given and agreement reached upon appropriate precautions to be taken between the ship and the terminal. Where any question is not considered to be applicable a note to that effect should be inserted in the remarks column.

☐ —the presence of this symbol in the columns 'ship' and 'terminal' indicates that checks shall be carried out by the party concerned.

The presence of the letters **A** and **P** in the column **'Code'** indicates the following:

A—the mentioned procedures and agreements shall be in writing and signed by both parties.

P—in the case of a negative answer the operation shall not be carried out without the permission of the Port Authority.

PART A

Bulk liquids—General	*Ship*	*Terminal*	*Code*	*Remarks*
A1 Is the ship securely moored?	☐	☐		
A2 Are emergency towing wires correctly positioned?	☐	☐		
A3 Is there safe access between ship and shore?	☐	☐		
A4 Is the ship ready to move under its own power?	☐		**P**	
A5 Is there an effective deck watch in attendance on board and adequate supervision on the terminal and on the ship?	☐	☐		
A6 Is the agreed ship/shore communication system operative?	☐	☐	**A**	
A7 Have the procedures for cargo, bunker and ballast handling been agreed?	☐	☐	**A**	
A8 Has the emergency shut down procedure been agreed?	☐	☐	**A**	
A9 Are fire hoses and fire fighting equipment on board and ashore positioned and ready for immediate use?	☐	☐		
A10 Are cargo and bunker hoses/arms in good condition and properly rigged and, where appropriate, certificates checked?	☐	☐		
A11 Are scuppers effectively plugged and drip trays in position, both on board and ashore?	☐	☐		
A12 Are unused cargo and bunker connections including the stern discharge line, if fitted, blanked?	☐	☐		
A13 Are sea and overboard discharge valves, when not in use, closed and lashed?	☐	☐		
A14 Are all cargo and bunker tank lids closed?	☐	☐		
A15 Is the agreed tank venting system being used?	☐	☐	**A**	
A16 Are hand torches of an approved type?	☐	☐		
A17 Are portable VHF/UHF transceivers of an approved type?	☐	☐		

PART A—*continued*

Bulk liquids—General	*Ship*	*Terminal*	*Code*	*Remarks*
A18 Are the ship's main radio transmitter aerials earthed and radars switched off?	☐			
A19 Are electric cables to portable electrical equipment disconnected from power?	☐	☐		
A20 Are all external doors and ports in the amidships accommodation closed?	☐	☐		
A21 Are all external doors and ports in the after accommodation leading onto or overlooking the tank deck closed?	☐	☐		
A22 Are air conditioning intakes which may permit the entry of cargo vapours closed?	☐	☐		
A23 Are window-type air conditioning units disconnected?	☐	☐		
A24 Are smoking requirements being observed?	☐	☐		
A25 Are the requirements for the use of galley and other cooking appliances being observed?	☐	☐		
A26 Are naked light requirements being observed?	☐	☐		
A27 Is there provision for an emergency escape possibility?	☐	☐		
A28 Are sufficient personnel on board and ashore to deal with an emergency?	☐	☐		
A29 Are adequate insulating means in place in the ship/shore connection?	☐	☐		
A30 Have measures been taken to ensure sufficient pumproom ventilation?	☐			

Part B

Additional Checks—Bulk Liquid Chemicals	*Ship*	*Terminal*	*Code*	*Remarks*
B1 Is information available giving the necessary data for the safe handling of the cargo including, where applicable, a manufacturer's inhibition certificate?	☐	☐		
B2 Is sufficient and suitable protective equipment (including self-contained breathing apparatus) and protective clothing ready for immediate use?	☐	☐		
B3 Are counter measures against accidental personal contact with the cargo agreed?	☐	☐		
B4 Is the cargo handling rate compatible with the automatic shut down system if in use?	☐	☐	**A**	
B5 Are cargo systems gauges and alarms correctly set and in good order?	☐	☐		
B6 Are portable vapour detection instruments readily available for the products to be handled?	☐	☐		
B7 Has information on fire fighting media and procedures been exchanged?	☐	☐		

PART B—*continued* *Additional Checks—Bulk Liquid Chemicals*	*Ship*	*Terminal*	*Code*	*Remarks*
B8 Are transfer hoses of suitable material resistant to the action of the cargoes?	☐	☐		
B9 Is cargo handling being performed with the permanent installed pipeline systems?	☐	☐	**P**	

PART C *Additional Checks—Bulk Liquefied Gases*	*Ship*	*Terminal*	*Code*	*Remarks*
C1 Is information available giving the necessary data for the safe handling of the cargo including, where applicable, a manufacturer's inhibition certificate?	☐	☐		
C2 Is the water spray system ready for use?	☐	☐		
C3 Is sufficient and suitable protective equipment (including self-contained breathing apparatus) and protective clothing ready for immediate use?	☐	☐		
C4 Are void spaces properly inerted where required?	☐			
C5 Are all remote control valves in working order?	☐	☐		
C6 Are cargo tank safety relief valves lined up to the ship's venting system and are by-passes closed?	☐			
C7 Are the required cargo pumps and compressors in good order, and have the maximum working pressures been agreed between ship and shore?	☐	☐	**A**	
C8 Is reliquefaction or boil off control equipment in good order?	☐			
C9 Is gas detection equipment set for the cargo, calibrated and in good order?	☐	☐		
C10 Are cargo system gauges and alarms correctly set and in good order?	☐	☐		
C11 Are emergency shut down systems working properly?	☐	☐		
C12 Does shore know the closing rate of ship's automatic valves; does ship have similar details of shore system?	☐	☐	**A**	
C13 Has information been exchanged between ship and shore on minimum working temperatures of the cargo systems?	☐	☐	**A**	

	Ship	*Shore*
Are tank cleaning operations planned during the ship's stay alongside the shore installation?	Yes/No*	
If so, have the port authority and terminal been informed?	Yes/No*	Yes/No*

**Delete Yes or No as appropriate*

Declaration

We have checked, where appropriate jointly, the items on this check list, and have satisfied ourselves that the entries we have made are correct to the best of our knowledge, and arrangements have been made to carry out repetitive checks as necessary.

For Ship	*For Terminal*
Name __________	Name __________
Rank __________	Position __________
Signature __________	Signature __________

Time __________

Date __________

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